

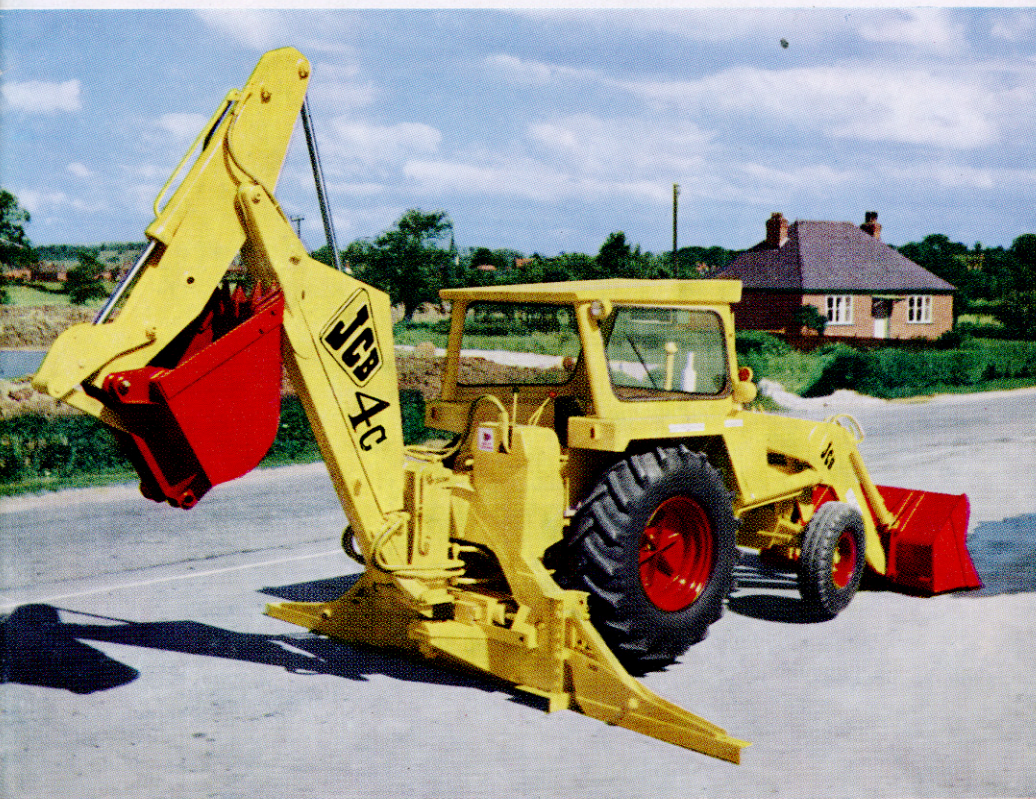
# AIRFIX

ONE SHILLING MONTHLY

## magazine

For plastic modellers

**JULY 1963**



### IN THIS ISSUE

Inside story of the Golden Arrow ★ New motorcycle and rolling stock kits by Airfix ★ Profile: Converting the Airfix Heinkel ★ Building a portable model racing workshop

1!





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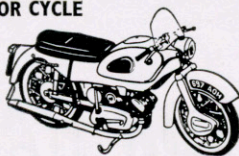
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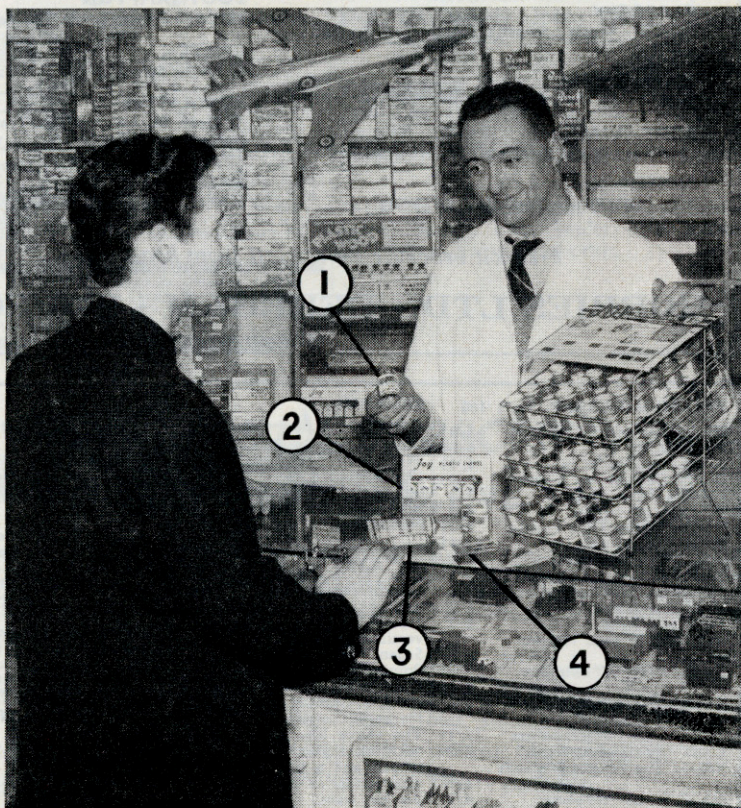
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# AIRFIX

## MAGAZINE

For plastic modellers everywhere

VOLUME 4

NUMBER 2

JULY 1963

ONE SHILLING MONTHLY

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## Above and below the Thames

TWO important new transport developments are now taking shape on the River Thames. First there is the new regular passenger service by Hoverbus. Secondly, the new Dartford-Purfleet tunnel is nearing completion, and should be opened later this summer.

Last month, a D2 Hovercraft, constructed by Denny Hovercraft Ltd, of Dumbarton (a subsidiary company, incidentally, of the builders of such famous vessels as the *Cutty Sark*, and the cross-Channel car ferries *Lord Warden* and *Maid of Kent*) made her way from Clyde to London, where she inaugurated the first Hoverbus service on the Thames.

Behind this exciting event lies a significant link with history. In 1814, one of the earliest types of steamboats, the *Marjory*, became the first steamer to run a service on the Thames. She was built by William Denny, and it was his pioneering activities which led to the foundation, early in the nineteenth century, of William Denny & Brothers Ltd, whose subsidiary company built the D2, in association with Hovercraft Development Ltd. This latest step forward in Hovercraft service is yet another example of the big future which undoubtedly lies ahead for this type of vessel.

When the new Dartford-Purfleet tunnel opens, it will contribute significantly towards easier travel for the motorist and, it would seem, for the cyclist, too. Bicycles must not be ridden through the tunnel during the day, and so the Ministry of Transport has had built some special double-deck buses, which will run a regular service for cyclists. One of these is illustrated on page 47 this month.

Cycles will be carried in special racks built into the lower deck of the bus, while their riders travel in comfort on the upper deck. A compartment at the rear of the bus can cater for tricycles, tandems and, if necessary, penny farthings!

## Contents

In the air - <i>Alan Hall</i> ...	36
News from Airfix ...	38
Wheelspin - <i>Bert Lamkin</i> ...	40
Plastic modelling - <i>Mike Bryant</i> ...	42
Layout realism - <i>Alex Bowie</i> ..	44
On road and track - <i>Darryl Reach</i> ...	46
Railway review - <i>Norman Simmons</i> ...	48
Profile - <i>M. J. F. Bowyer</i> ...	50
Shipping notes - <i>A. J. Day</i> ...	54
Book reviews ...	56
Picture page ...	57
New kits and models ...	58
Readers write ...	62

## Cover picture

This hydraulic excavator/shovel—a JCB 4C, made by J. C. Bamford (Excavators) Ltd, of Rocester — is powered by the 57 horsepower Fordson Super Major diesel engine. With a tearout force of 22,000 lb at the bucket teeth, even the toughest ground presents no problem to this versatile and rugged machine. In this month's issue (on page 38) can be found details of the new Airfix Lowmac kit, which has a similar JCB 3 excavator as its realistic load.



# IN THE AIR

BY ALAN W. HALL

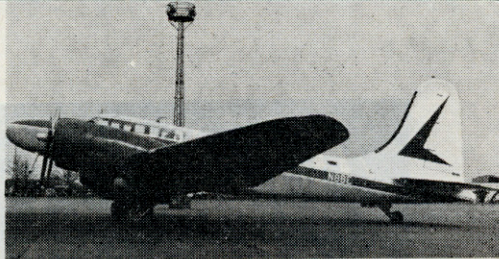
ONE of the greatest difficulties for all aviation enthusiasts when travelling on the Continent is finding the centres of aviation interest, so I thought that a few words on this subject might be of help to the many thousands of readers who will be away on holiday in the next few months.

Obviously, the greater number will be visiting Paris this year, but by the time this issue of AIRFIX MAGAZINE has reached the bookstalls, the 25th Salon at Le Bourget will be over. However, there must surely be many others who will be visiting the Paris region later in the season, and as it is one of the most interesting centres in Europe a few notes on the airfields surrounding it would not be amiss.

Paris has two main civil airports for scheduled transport and freight traffic. One is Le Bourget, four miles north of Paris on Route N2, which caters for military, charter and executive aircraft, fills the role of a French Gatwick, and is the lesser of the two. Orly, on the other hand, situated on the south side of Paris on Route N7, is the main terminal and deals with all trans-Atlantic and other intercontinental traffic. Both airports have good spectator enclosures which, although they cost a little bit more than their English equivalent, are well sited and worth a visit.

To my own way of thinking, the many light aircraft fields around Paris provide a constant source of new and interesting types that make the mind boggle at their number and variety. Toussus Le Noble and its neighbours at Buc and Guyancourt are the best to visit if you want a lot in a short time. At weekends they are absolutely full to capacity, and movements must surely equal Heathrow at the height of the season. Toussus is open to visitors, and a system of painted walkways allows the enthusiast to inspect all the hangars without getting in the way of aircraft ground movements. All the airfields can be reached by Metro to Versailles and then by bus. These are infrequent and it is best to get a time-table before making the trip.

Apart from the three fields mentioned, there are several others in the immediate vicinity of Versailles—St Cyr, Chavenay,



*Interesting visitors. Top: A very rare Douglas B-23 Dragon N86E seen at Gatwick on April 28, followed on April 30 by two Invaders, N400K and N300V. (Photos: B. Stainer).*

Velizy, Beynes-Thiverval, Frileuse and Villacoublay. All of these cater for the light aircraft club or for gliders, with the exception of the last mentioned. This is a military transport airfield, and you will see such types as the Bretagne and Flamant stationed there.

If you visit Orly, you may care to go on to Bretigny, which is on D31, a turning off the N7, several miles further south. This airfield is the French equivalent of Farnborough and should be visited on a weekday as, like most establishments of this kind, they operate a five-day week with few exceptions.

These are just a few of the interesting airfields in and around Paris—there are many more, but as yet I've not had the opportunity to visit them. They are all shown on the Michelin 1/100,000 map of Paris and its environs which costs 5s and can be obtained through most booksellers.

Throughout your travels on the Continent you'll find small grass airfields in the most surprising places. These either belong to private individuals, consisting of a grass strip and a hangar, or else they belong to some small local flying club. The whole



attitude to aviation is different in France. The private and executive aircraft market is much larger, due probably to the comparative size of our two countries, and the fact that it is much easier to learn to fly there than in England. Most towns, large and small, have their own airstrips, and getting around the country on business in a light aircraft is comparatively easy.

★ Since having a few words to say about spotting by radio in the March edition of *AIRFIX MAGAZINE*, I have had many letters from readers asking for details about the various VHF radios available and, above all, about the various frequencies used by aircraft that can be heard on them.

I have already reviewed the Johnsons (Radio) of Worcester set, which is the cheapest on the market. Generally speaking, this needs building by the enthusiast and, although it has the important factor of being so low priced, it is perhaps more suitable for the man who understands radio a little better than most of us.

If you are like me, you will need something to switch on, turn a knob and receive the station you require without any further manipulation. There are several sets like this on the market, and I have recently had the pleasure of being able to try out a set manufactured by Shorrocks of Blackburn. This set is for the enthusiast who wants the sophistication of a transistorised VHF receiver which, at the same time, can receive all the BBC and Continental broadcasts on the Medium and Long waveband as well. It is fully self-contained, is operated by a three-shilling battery which can be obtained anywhere and has a life of some 200 hours.

So far, I have experimented with this set both at home, while driving the car and while on duty at various Royal Observer Corps exercises. To say the least it has withstood all the tests I have set it and from my home in Buckinghamshire I have been receiving aircraft situation reports from as far away as the Welsh coast, Holland and Northern France, all loud and clear.

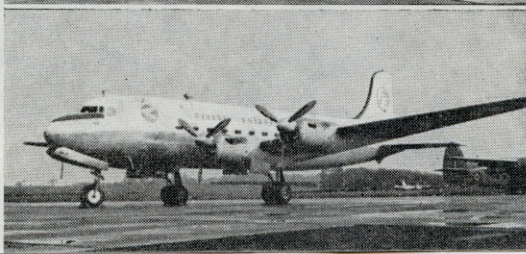
It has been of particular use in Royal Observer Corps aircraft reporting exercises. These, as you probably know, record the tracks of aircraft overland for RAF Fighter Command, and rely on the estimation of height and direction by observers. Many of the reports given are wildly out in these estimates, but I have found that, by using the reports given over the radio by

the aircraft, we can not only tell when a certain aircraft is coming into our area, but can get an accurate height and direction as well. By relating the estimate to the actual height, experience can be gained by those on duty, and in the long run a far more accurate report given. The Shorrocks VHF receiver will also receive the new ROC radio transmission frequencies as well.

Living in the London region I have found that many of the frequencies on the set are local and cannot be received in the North. For more details, I would advise that you consult a book called the *Air Pilot*. This is the official 'guide', if you like, for the aviator and contains all the frequencies and airways in the country, together with full details of the airfields. It can be obtained through your public library and is a loose-leaf publication.

The cost of the Shorrocks set is £36 for the VHF and commercial broadcast version, though if you want the VHF only, the price is £26 for the complete unit. Obviously there are many details that cannot be included in an article of this length and if any of my readers would like to know something about the radio, and the frequencies and call signs of the aircraft that can be heard, they can write to me and I will do my best to help them.

★ In spite of 3rd United States Air Force Headquarters at Ruislip saying that there would be no flying at the 'Open House' day at Bentwaters USAF base on May 11, the few enthusiasts who did put in an appearance were entertained to a very lively display by the home-based F-101 Voodoos. The mass take-off of 16 of these twin-jet strategic fighters reminded one of last year's finale at Farnborough, and the subsequent aerobatics by individual Voodoos were top-rate. Visitors to the field included F-100s from Wethersfield, some Luftwaffe F-85F Thunderstreaks and a solitary Lightning from No 111 Squadron.



*More interesting visitors, this time at Luton on May 23. Top: the Riley Rocket N656R which lost its way crossing the Atlantic and only just made the Hebrides, and OY-AFB, a DC-4M of Flying Enterprise, the Danish charter company.*



## NEWS FROM AIRFIX

The world's greatest value in construction kits

# Another 'double', and first two-wheeler from Airfix

**B**OTH model railway and motor cycle enthusiasts are catered for this month with the introduction by Airfix of an OO/HO gauge British Railways Lowmac wagon—complete with a JCB 3 excavator—and a 1:16 scale Ariel Arrow Super Sports. For these two latest kits, Airfix have adopted a new, and more distinct, style for the instruction sheets, with step-by-step drawings, which will be a feature of all future Airfix kits, and should greatly simplify construction.

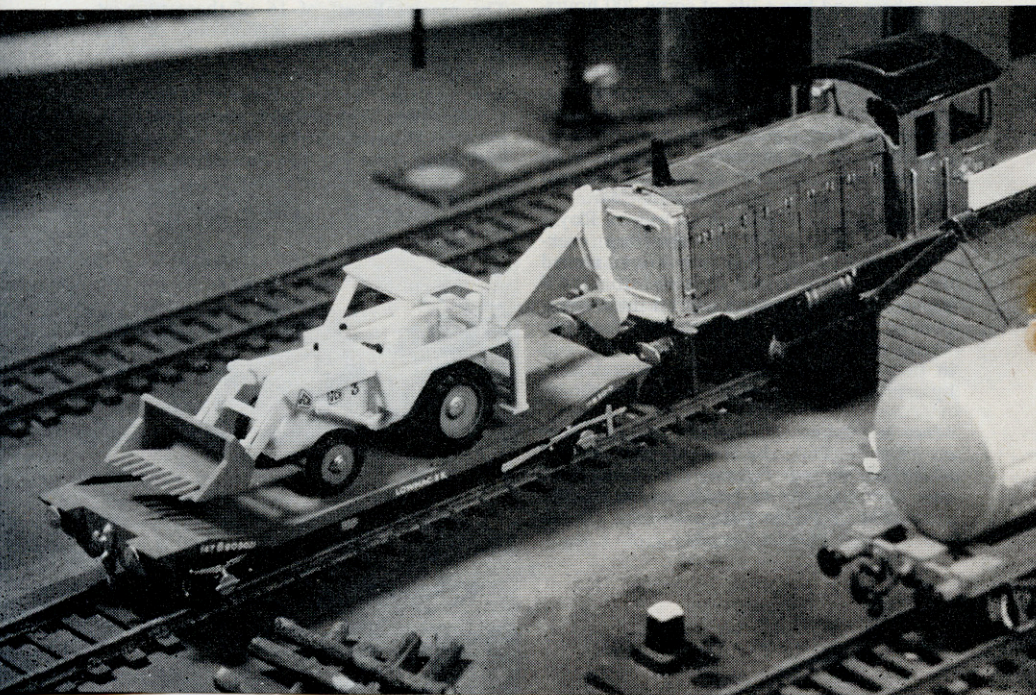
The two-part Lowmac kit, which sells for 3s, comprises 60 parts—all moulded in yellow plastic, with the exception of the wheels and axles for the wagon, which are in black. The deck of the well-detailed Lowmac wagon has an authentic wood grain finish, which contrasts realistically with the smooth finish of the metal parts of the wagon. Springs and brake levers are other well-reproduced features.

When completed, the wagon is extremely

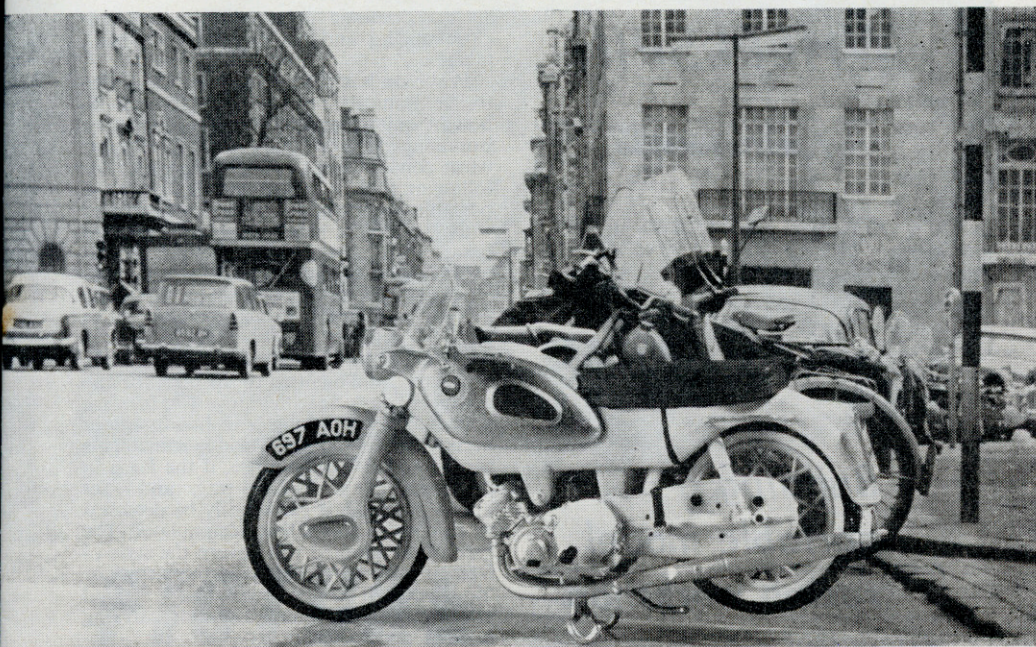
rigid, and there is plenty of room beneath for adding any ballast which may be necessary. It is provided with alternative types of coupling—scale versions for a non-working model, or working 'buckeye' couplings. If desired, the Peco coupling can easily be substituted. For railway modellers wanting more than one Lowmac, but only one excavator, the spare excavator parts could be adapted, with some thought, into other types of earth-moving machinery.

The JCB excavator is an intriguing little model, which makes an attractive load for the Lowmac. It can, of course, be used as a separate model, for instance as part of a 'road up' scene on a model layout. It has revolving wheels, a swivelling driver's seat,

Above, right: *The Ariel Arrow 'parked' against a realistic background.* Below: *An Airfix Drewry shunter coupled to the Lowmac, with its realistic load of a JCB 3 excavator.*







steering wheel, and movable, elevating front bucket. But it is the rear boom and kingpost assembly which fascinates. When assembled, it permits the rear bucket to 'operate' in absolutely true-to-prototype fashion. It can, in fact, be moved through four separate planes.

Full painting details and a set of transfers are included with this kit, which will find a fitting home on any model road or railway layout. Fifty-two of this version of the 14-ton Lowmac wagon have been built, and are a common sight on British Railways where unusually bulky or heavy loads have to be transported. The JCB 3 excavator is among the wide range of earth-moving machinery produced by J. C. Bamford (Excavators) Ltd, of Rocester.

First venture by Airfix into the two-wheeler field, the Ariel Arrow Super Sports kit is, as many will recognise, a revised version of the similar Kitmaster kit, which first appeared over a year ago. Airfix have since acquired the Kitmaster moulds, and this is the first such kit to be marketed under the Airfix label. Among the modifications that have been made to the kit are the adoption of re-moulded wheels, which still incorporate 'see-through' spokes.

This is an extremely well-detailed kit of the machine which was voted 'Motor Cycle of the Year' for 1960 in a national poll run by *Motor Cycle News*. Most of the 47

parts in this kit, which now sells for 2s, are numbered, which makes identification much easier. The kit is moulded in white plastic, with a headlamp lens and racing-type windscreen in clear plastic.

The correct reproduction of the pressed steel frame of the prototype ensures a strong plastic model. Among the wealth of detail are clutch and brake levers and dipswitch on the handlebars, licence disc, footrests for rider and passenger, kick-starter, footbrake and gear lever, rear lifting handles and telescopic suspension dampers, hooter and air cleaner and, of course, a finely-detailed engine, complete with twin exhaust pipes.

Comprehensive painting details are given, and the transfer sheet supplied features a speedometer, number plates, and maker's emblems for the petrol tank. The prototype machine, a sporty version of the Ariel Leader, has a 250 cc two-stroke twin-cylinder engine which gives it a speed of over 80 mph. The finished model can be displayed on a special stand provided, or it will stand on its own prop-stand.

#### Airfix in America

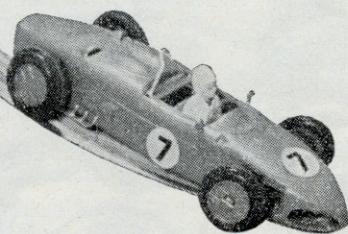
AIRFIX plastic construction kits are to be produced in the United States, by the newly-formed Airfix Corporation of

*Continued on page 61*



# WHEELSPIN

by Bert Lamkin



## *Building a portable model racing workshop*

MINIATURE motor racing has now become a very widespread hobby, and is attracting a steady flow of new enthusiasts. I have been asked on many occasions what is the best scale to adopt. This depends very much on individual circumstances, but I normally recommend the 1:32 scale, as with this there is a very wide range of commercial articles available. This means that quite a number of cars, of both GP and closed types, can be assembled, and also that various buildings and figures can be bought, either complete or in kit form.

Another aspect that makes 1:32 scale a good choice is the fact that a number of clubs are in existence, or are being formed, using this as their standard scale. So if it is not practicable to have your own track, you can join a club and concentrate on competing with your own 'stable' of cars. This follows full-size racing practice—with the advantage that you do not need a 60 foot transporter—and it is also considerably cheaper!

### **Portability**

Pursuing this idea, a good start could be made by constructing a small case to serve as a car carrier and workshop combined. The sketch this month illustrates the suggestion and, as can be seen, it is relatively simple to make. The final size naturally depends on the number of cars in your 'equipe'. A big advantage of this approach to model car racing is that it does not cause

such a domestic upheaval—you can just close the lid and madam has the dining table!

Provision has been made for a small vice to be mounted on the lid. This can be bought quite cheaply from a tool shop or ironmongers, and will prove invaluable when constructing or modifying cars. The following tools will be found useful for the portable workshop:—Small screwdriver with  $\frac{1}{8}$  in blade; small pliers with pointed jaws; small metal saw (Eclipse junior hacksaw); Archimedian drill; small drills, taps and dies, 6, 8, 10 BA; set of needle files; small soldering iron and cored solder; pin vice; and dividers.

The central tray will house all these tools, and clips could be fitted to the back for any additional ones. So with the open lid forming your bench, everything is to hand without occupying much space. Various refinements can be added. For instance, if the lid is in the form of a shallow tray, and split hinges are used, it can readily be detached to dispose of waste that accumulates. The type of lid adopted will govern the style of fastening used—local ironmongers or 'do-it-yourself' shops usually carry a good selection of such items, including carrying handles and fasteners.

With regard to clubs specialising in miniature car racing, we are hoping to compile a list of addresses of these, which will be available from the AIRFIX MAGAZINE editorial office in due course, but please do not apply immediately you have read this—we will announce the fact later. Meanwhile, a brief list is featured at the end of this month's article.

The development and modification of cars is very much a matter of personal taste and know-how. Some standard ideas, however, have been widely adopted—one being to avoid a rigid wheelbase. There is plenty of scope here, ranging from the pivoted front axle to fully independent suspension.

With regard to the latter, I personally am not sure that the results in respect of the car's roadholding are necessarily much better. However, it is very satisfactory to see, and a credit to the builder. One can scale down the components of such a system, but this will not always produce the same effect as in the full-size car. On real cars a great deal of effort is spent on developing suspension, involving such technicalities as spring rates, roll centres and camber angles. In actual racing, these factors often need to be adjusted to suit the type of circuit on which the car is competing.

So, if you really want to go into the problem thoroughly, it will mean calculating the size and type of material to be used.



There is a world of difference between a car weighing many hundredweights and one weighing only a few ounces. Anyway, good luck to all those prepared to try—the ultimate aim being to keep all four wheels in contact with the track at all times.

### Pick-up

Another fairly standard feature is the use of braided wire for the current collectors (I am, of course, referring to slot tracks). I have made no reference to rail types, as it would appear that the slot variety is now universally the most popular. (As a matter of interest, the first track I ever made was rail.)

The braid collectors seem to have more tolerance than some other methods of pick-up. Needles to say, the most important thing with low voltage systems is the need for good, clean contact. It is surprising how often a car's erratic running can be traced to poor contacts.

The spares in your carrier should include a selection of tyres and gears. As with real cars, experimenting with various combinations of each can be very rewarding. The golden rule with gears is to insure that they mesh correctly.

### Steering

Steering is being used more by modellers now, although some may have the same views that I expressed on full suspension, namely that it does not necessarily improve performance. However, I feel that steering is a feature worth incorporating, even if only for appearance sake. It calls for a bit more effort if you are starting from scratch, but there are also several proprietary units available. Adapting them to your own

particular chassis should not be too difficult, assuming you are using 1:32 scale.

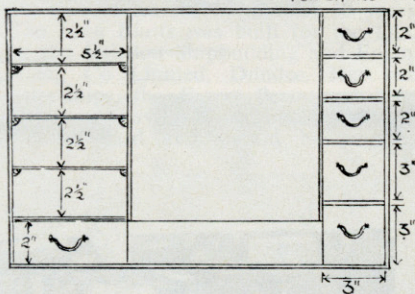
I have recently been trying the larger curves in the Airfix track, and they are very useful. I have used them for the replacement of the small-radius curves on the Mallory Park model circuit that was featured in an earlier issue. These new units fit together with the small curves very neatly, to form a four lane circuit. If desired, the fencing lugs on the outside of the small-radius curves register with the holes on the inside edge—of the large radius units.

### Miniature racing clubs

**Twickenham:** J. W. Downing, 20 Cambridge Park, East Twickenham. **Wimbledon:** G. Hutchieson, 29 Ridgeway Place, Wimbledon, SW19. **Enfield:** F. G. Davies, 39 Peshurst Road, Tottenham, N17. **Walsall:** D. J. Cockayne, 49 Lincoln Road, Walsall, Staffs. **Bristol:** M. S. Vockings, 33 Jefferies Hill Bottom, Hanham. **Taunton:** M. W. Lewis, 63 Greenway Crescent, Taunton, Somerset. **Orpington:** K. Hayes, 79 Leasons Hill, St Pauls Cray, Orpington, Kent. **Croydon:** A. W. Giffen, 16 Farley Road, Selsdon, Surrey. **Plymouth:** N. McCabe, 40 Reddington Road, Higher Compton, Plymouth. **Manchester:** G. V. Thomas, 2 Goodwill Close, Swinton, Manchester. **Catterick:** A. F. Crenner, 34 Teesdale Road, Catterick Camp, Yorks. **Aylesford:** V. Warner, Aylesford Paper Mills, Larkfield, Nr Maidstone, Kent. **Reigate:** M. E. Reid, 5 Colebrooke Road, Redhill, Surrey.

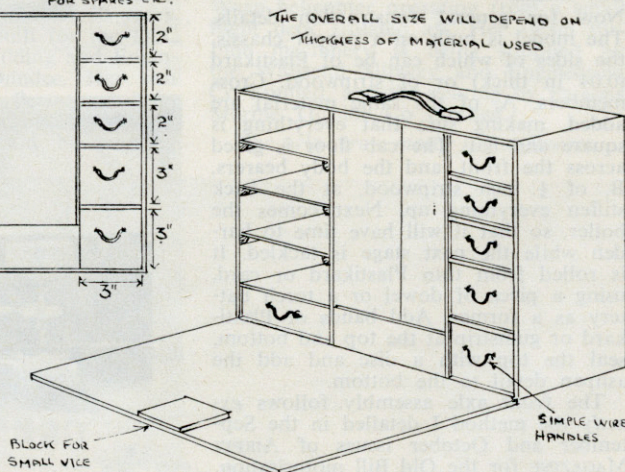
*A sketch, by the author, showing dimensions and layout of his suggested portable car carrier and workshop for model racing enthusiasts.*

CAR SHELVES



DRAWERS FOR SPARES ETC.

SUGGESTED CARRIER-CUM WORKSHOP





## Building a steam wagon

**T**HE old-fashioned steam wagon always seems to have a real fascination and anyone wanting a commercial vehicle to go with their B-Type buses should enjoy building this month's model, which is based quite closely on the Garratt wagons of the same era. You will see that the prototype does not attempt to disguise the fact that it is a steam lorry—no streamlined cabs and concealed boilers, which some firms used towards the end of the steam wagon age!

My model was built mainly in Plastikard of various thicknesses, but construction could just as easily have been from stripwood and shellacked card. It has Ackermann steering, correctly worked from the steering wheel, and is driven by a Ripmax Orbit 305 electric motor from a battery carried in the back of the lorry. The gearing is 1:2 spur from the motor to the prop shaft, and from there by 36:1 worm and worm wheel to the back axle. All gears are Ripmax plastic gearing. The 'chain' drive is therefore dummy—in actual fact Ripmax plastic pulleys with rubber bands for chains—but the gain in realism by fitting it is quite remarkable. With the low reduction gear in the drive the lorry is very powerful indeed, and will haul a heavy load.

### The chassis

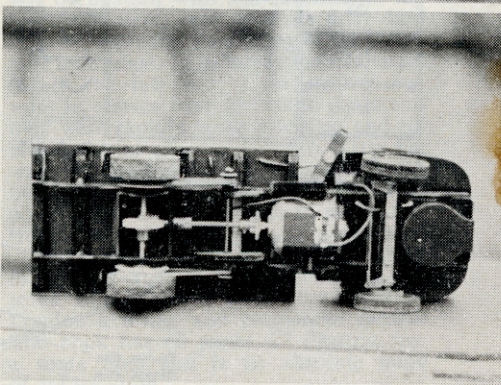
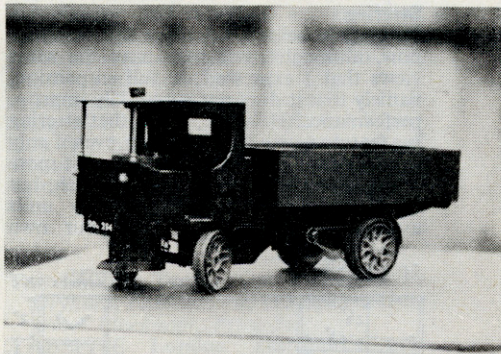
Now for general construction details. The model is built on a proper chassis, the sides of which can be of Plastikard (0.04 in thick) or of stripwood. Cross members, A, of the same material are added, making sure that everything is square and flat. The cab floor is glued across the front, and the body bearers, B, of  $\frac{1}{4}$  inch stripwood, at the back stiffen everything up. Next comes the boiler, so that it will have time to harden while the next stage is tackled. It is rolled from thin Plastikard or card, using a piece of dowel or a torch battery as a former. Add bands of Plastikard or gumstrip at the top and bottom, seal the top with a disc and add the ashpan detail to the bottom.

The front axle assembly follows exactly the method I detailed in the September and October issues of AIRFIX MAGAZINE for the Old Bill motorisation,

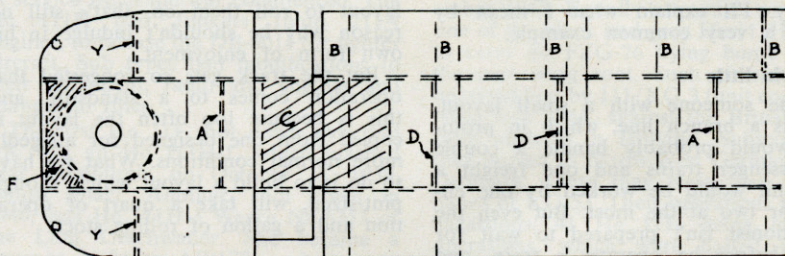
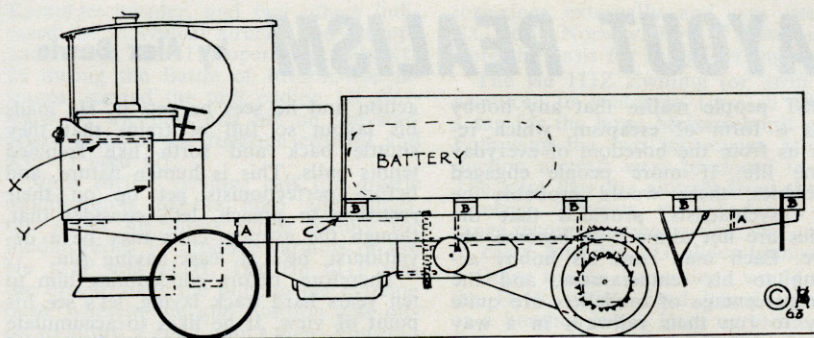
and the whole unit is screwed to a bearing plate cemented to the two front projections on the chassis side frames. The motor mounting plate, shaded at C, is cemented between the frames and the motor, with a small 10 tooth gear wheel on its armature shaft, and is screwed in place. The back axle, worm wheel and rear wheels are now fitted. The propeller shaft bearers, D, are cemented between the frames and the propeller shaft, and are inserted with a 20 tooth spur gear

Right: Read in conjunction with the text, this scale drawing gives details and sizes of the materials used in construction. Below: Two views of the completed steam wagon, from which can be seen the steering, wheels, installation of the electric motor and its drive, and the simple on/off switch.

(Photos: D. J. Viner.)







on one end and the worm on the other. Adjust the mesh of the gears before the cement hardens. There should be enough play to allow them to run freely without too much 'chatter'. Now allow the chassis to harden thoroughly overnight.

### Building the cab

The boiler should now be glued in the semi-circular recess in the front of the cab floor, and the front frame stretcher, shaded at F, added. The cab front can now be bent and cemented round the cab floor. The top plate, X, which is a duplication of the front part of the cab floor, is glued in the position shown dotted on the elevation. Oblongs of Plastikard, Y, square things up. The steering column and wheel should now be fitted. The column passes down through the hole in the cab floor and its upper end is supported by a bracket of Plastikard, as shown. Below the floor the column is bent backwards at right-angles and engages in a bent-up U in the track rod.

Once the steering is working satisfactorily, the cab back and side sheets can be added, and also the chimney, which is a length of rolled gumstip, made by using a pencil as a former. Now comes the roof and the front pillars, which can be of thin dowel or, as in

my model, two stanchions from the Airfix platform canopy kit. The tank behind the cab is simply a box of Plastikard cemented to the cab back and to the floor. The small square of cab floor protruding behind the cab on the off-side makes a suitable mounting for a switch, as can be seen in the photograph.

Almost any kind of body can be fitted. I chose this particular type because a flat 4½ volt pocket lamp battery (Ever Ready No 1289) fits nicely under a cover at the front end. This gives a powerful drive and lasts for months, even with extensive use.

### Old Bill helps

With this model I used quite a number of bits and pieces from an Old Bill kit—the wheels, headlamps, mudguards and an assortment of bits to make up the under-chassis engine and dummy drive, as the photographs show. The front wheels are thickened by the addition of an extra 'tread' and all wheels have a strip of a broad, flat rubber band glued round them to give extra grip. The rather weathered lettering on the cab was put on with Letraset. If painting is your strong point, you can let yourself go on a colourful finish with plenty of lining: my model has a distinctly work-a-day look!

Copyright, Mike Bryant, 1963.



# LAYOUT REALISM by Alex Bowie

**M**OST people realise that any hobby is a form of escapism, which relieves us from the boredom of everyday routine life. If more people engaged in hobbies, there would probably be fewer psychiatrists, provided that the hobbies are not allowed to become obsessive. Each man runs his hobby according to his temperament, and the larger percentage of modellers are quite happy to run their railways in a way which is not strictly to the rule book, simply because in doing so they are able to concentrate on running them enjoyably. I'll explain what I mean by giving a very common example.

## Much in little

Imagine someone with a small layout. He has a branch line, which in prototype would probably handle a couple of passenger trains and one freight a day, and would be worked by one engine, or two at the most. But even the perfectionist isn't prepared to wait for hours before he operates a train, and generally manages to cut this down to, say, a train every ten minutes.

The average chap isn't content even with this sort of compromise. He wants

*Fig 1: A station leading into a storage siding can be more realistic than a second terminal. This one can be made from adapted kits. The goods shed is made from the loco shed kit, a detached house and booking hall kit form the station buildings, while a very much cut down canopy makes a smaller canopy and awning.*

action and he sees he gets it. He loads his layout so full of trains that they shuttle back and forth like frenzied tennis balls. This is human nature, and before perfectionists get up on their rostrums to preach, let's consider that, though the average chap may be a deviationist, he's at least having fun.

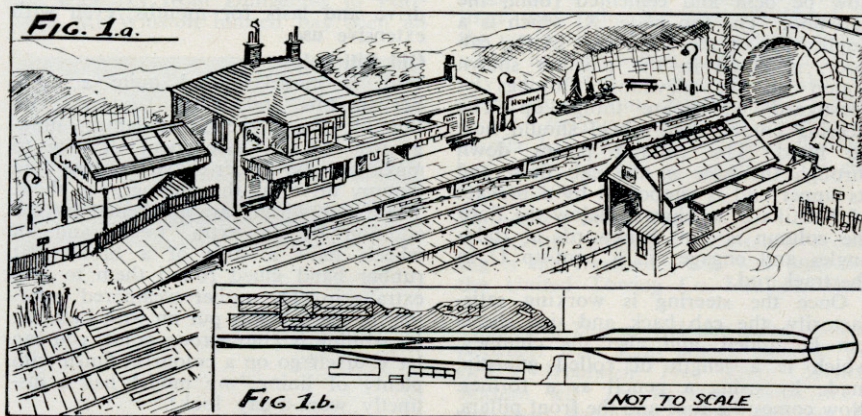
Therefore, before condemning him to ten years hard track laying, let's see his point of view. If he likes to accumulate plenty of rolling stock, it's only natural that he wants to see them roll. And if circumstances only allow a pint-sized layout to roll them on, that's still no reason why he shouldn't indulge in his own form of enjoyment.

But the track gets so congested that operation comes to a standstill, and this is because too often the layout is copied from one designed for allegedly more normal conditions. What we have to do is to build a layout which, though pint-sized, will take a quart of operation and a gallon of rolling stock.

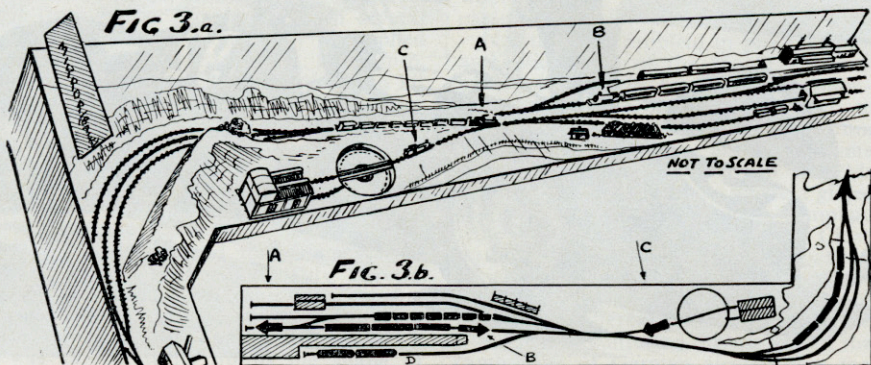
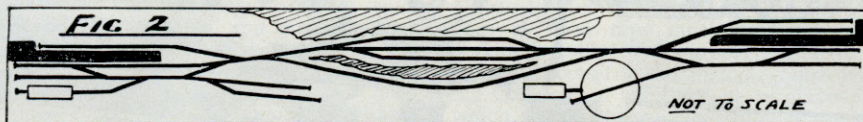
## Choose the right plan

Plenty of designs have been published which allow for storing surplus stock, and the most common are those which have hidden storage sidings, traversers, or sector plates at one end of the layout. Usually these storage sidings, etc., serve as imaginary stations, so that there has been only one visible station on the layout.

But suppose two stations are wanted? A method not used much is shown in sketch 1a. This uses a passing station,







nestling against a tunnel mouth. The 'tunnel' leads into the hidden sidings, as in the smaller sketch 1b. Most layout arrangements have their pros and cons, and in this case you'll get a very workable layout but with a shortened 'main line', for obvious reasons.

### Storage in the middle

Now look at sketch 2. This shows the two-station layout idea which appeared in the November 1961 issue of *AIRFIX* MAGAZINE but, instead of a short tunnel connecting the two six-foot-long stations, there is a storage siding. This will give the illusion that each train is making a longer journey than is actually the case, because one train will obviously be held back, while another, previously dispatched to the hidden sidings, is now released. And because we want to see a piece of track in the middle of the layout, there is a visible single line which can represent another route.

Lastly, take sketch 3a. This shows a storage siding on a curve, in which trains can be held. Note the angled mirror which allows the operator to keep an eye on things, and it wouldn't be a bad idea to paint large white markers near the track, so that trains could be stopped near them. This is to avoid any possibility of two trains fouling each other as one or other nears the points.

The more important thing about this sketch is the plan underneath it, 3b. Here is a conventional layout, but it can be seen that the run-round loop must be

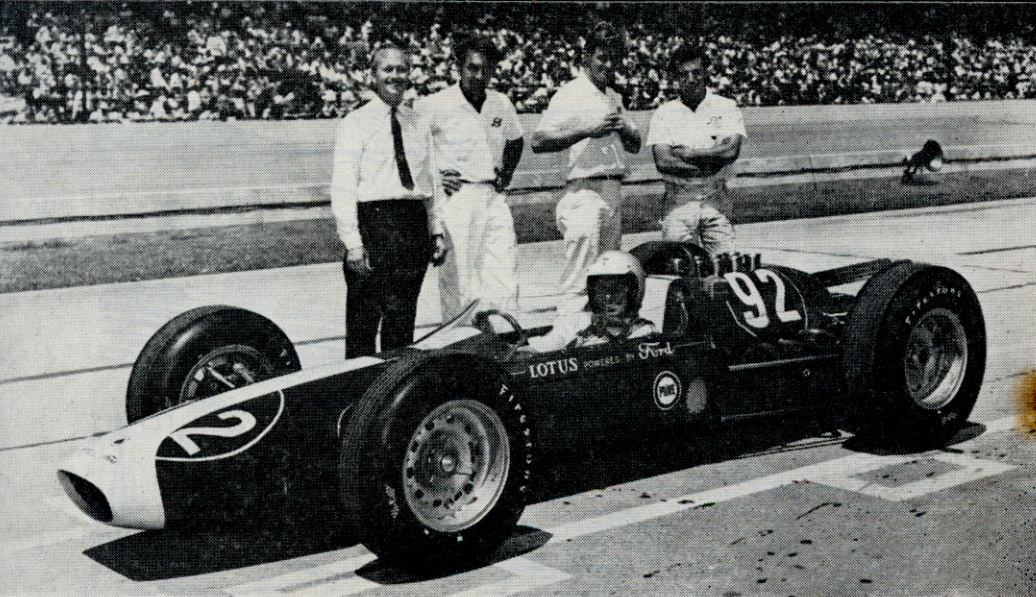
*Fig 2: A two station layout with 'long route' represented by hidden storage sidings and visible short route. Fig 3: Carefully planned, a simple layout can handle much traffic. It is best to first decide on what length or type of trains you want. Short suburban trains will be more convenient, will need shorter platforms and loops, and will look more in scale with their surroundings than long main line coaches.*

long enough to take a complete passenger train. In this way, your very simple station can cope with three trains and an extra loco almost simultaneously, without cumbersome manoeuvres; and though I appreciate that this may be highly imperfectionist, it's the sort of thing that a lot of people like.

Your goods loco A can draw its train into one half of the loop. Passenger train loco B remains well within the other half, and then loco A detaches and goes into what is, in effect, a siding. Shunting loco C, or the passenger loco B, can then chivy the goods train into a siding, so that loco A can get clear. Then goods train sorting can begin.

Meanwhile, a diesel or pushpull D can use the bay, and one or two trains wait in the hidden sidings. Don't forget, though, that this traffic represents practically the capacity of the whole railway, concentrated at one end. This is a situation that often arises, but if your other section has as much traffic as this one, goodness knows what might happen if it all met in the middle!





# ON ROAD AND TRACK

by Darryl Reach

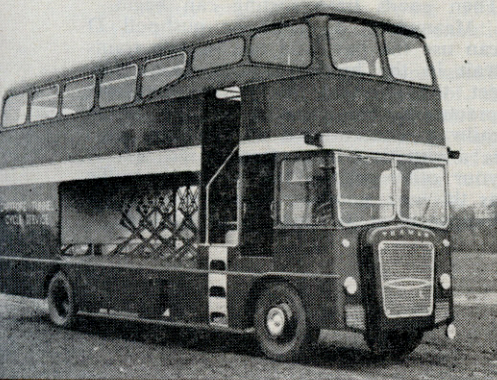
**T**WO widely different competition cars, both powered by large-capacity V8 American Ford engines, have been making the news in recent weeks. They are the Lotus 29, which appeared at Indianapolis, and the enormous Ford Galaxie, which has been dusting up the 3.8 Jaguars on British racing circuits.

In conjunction with Ford of Detroit, Colin Chapman, master-designer of the Lotus cars, built three new rear-engined machines especially for the 500-mile American classic. They are basically 'beefed-up' versions of the ingenious monocoque Lotus 25 Grand Prix car, which Jim Clark drives so well, and are designated Lotus 29s. The 29s are powered by engines based on the 4,260cc V8 Ford Fairline unit, giving something like 400 horsepower. Two of the three

cars were driven in the race by Jim Clark and Dan Gurney, while the third car was used as a spare.

For many years, American cars and drivers have dominated the Indianapolis 500, the great majority of them relying on the well-proven four-cylinder Meyer-Drake Offenhauser power unit, mounted in front. Various European cars and drivers have made appearances there, but it was not until Jack Brabham took a Cooper over in 1961 that the ball started rolling. As for the story of this year's race, well it was so nearly a win for Jim Clark. At one stage in the race, he and Dan Gurney were holding the first two places, which must really have surprised the Americans! Winner Parnelli Jones, driving an Agajanian Special, did not apparently drive according to the rule book and, with the fact that his car was spraying out oil for many laps, several

*Top: Jim Clark, his Lotus 29, designer Colin Chapman (left), and mechanics before the start of the Indianapolis 500. Left: When the new Dartford-Purfleet tunnel opens later this year, cyclists will, during the day, have to transport their machines on special buses like this, with cycle racks on the lower deck and passenger accommodation upstairs.*





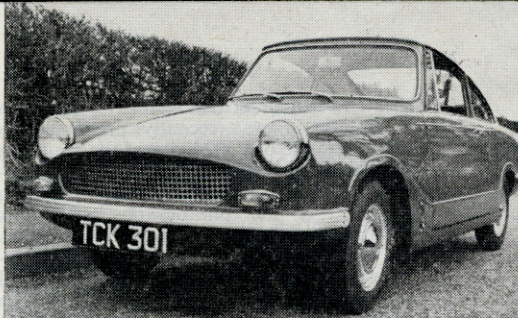
people thought he should have been excluded. One thing is certain, however, and that is that we shall now see a lot of fresh thinking on the design of cars for Indianapolis.

Now for the other V8 Ford-engined car—the Galaxie. One of these large, and rather ponderous-looking, machines was recently added to the John Willment team and made its first racing appearance, driven by saloon car expert Jack Sears, at the May Silverstone International meeting. It showed a very clean pair of heels to the 3.8 Jaguars, which have dominated this race since it was first run in 1951, and broke the outright saloon car lap record with a speed of 94.42 mph. Admittedly, it has a 7-litre engine, giving something like 430 horsepower, but it has taken a long time for British enthusiasts to be convinced that American cars now handle and brake well, when compared with their forebears of four or five years ago.

Jack Sears followed up his Silverstone debut with another first place at Aintree, and narrowly missed breaking the lap record. At Crystal Palace on Whit Monday, Sears' car was supplemented by another Galaxie, driven by Sir Gawaine Baillie. Sears won the race and Baillie finished fourth. After the Galaxie's Silverstone win, many people expressed doubt about the car being able to hold its own on a short, tight circuit. The Aintree and Crystal Palace wins would seem to prove that it can. Watch out, Jaguars!

#### **From three to four wheels**

New car news this month concerns the Bond Equipe GT, first venture into the four-wheeler market by the makers of the well-known Bond Minicar three-wheeler. Basically, the Equipe comprises the Triumph Herald 1200 chassis, with the four-cylinder Spitfire 1,147cc 63



*Above: The stylish new Bond Equipe GT. Below: Jack Sears and the enormous Willment Ford Galaxie on the way to winning the International saloon car race at Silverstone in May.*

horsepower engine, which are mated to an attractive two-door steel and reinforced glass fibre body.

The wisdom of using well-tried mechanical components on this specialist-built car is all the more obvious when one remembers that owners will have the benefit of the world-wide Standard-Triumph spares service. Price of the Bond Equipe GT is £822. The 14½-cwt car is claimed to accelerate from rest to 60 mph in 14 seconds, and its ten-gallon fuel tank should give a cruising range of over 300 miles.

Comfortable bucket seats, adjustable like those on the Herald through any of 72 different positions, are fitted, and the rear bench seat can easily carry two children, or, at a pinch, an adult sitting sideways, the limiting factor being head-room beneath the swept-down roof line. The rear bench seat can be folded flat to give extra luggage space. With the rear seat in use, there is still a useful amount of boot space, reached from inside the car. Standard equipment includes a rev counter, wood-rimmed steering wheel, heater, screen washers, vanity mirror and anchorage points for safety harness.





BY courtesy of British Railways, Southern Region, I was recently privileged to ride in the cab of E5024, one of the Southern Region's powerful Bo-Bo electric locomotives, hauling the all-Pullman Golden Arrow. As the photographs with this month's article show, these locomotives are not particularly handsome or impressive, but they are quite powerful machines for their size, rated at 2,500 hp and weighing only 77 tons. They were built by BR at Doncaster and were introduced in 1958, since when they have been doing some fine work on the Eastern and Central sections of the Region.

The Golden Arrow winter timing hardly calls for an extended effort on the part of either the locomotive or the driver, since the load is usually light. On this occasion, we had seven Pullmans and one four-wheeled luggage van, totalling 285 tons all told. The Pullman cars were, as usual, spotless and presented a pretty picture waiting for departure time on number 8 platform at Victoria Station, each car with its own attendant quietly seeing to passengers' needs. The Golden Arrow is still a truly dignified luxury service, in the best traditions of international travel.

Our departure was to be delayed two minutes on this occasion to allow a special train, carrying the President of the Republic of Cameroon from Gatwick Airport to Victoria, to cross our path outside the station. The short special train, made up



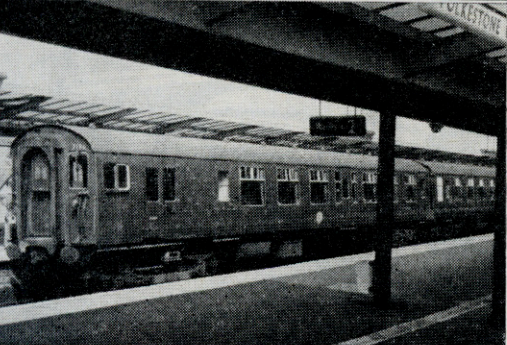
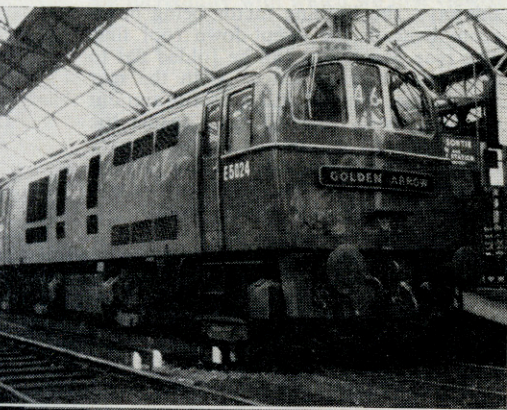
## RAILWAY R

BY NORMAN SI

of Pullman cars, was headed by 34088, 213 Squadron, but so silently did it drift into Victoria that it took me by surprise and I missed the chance to photograph it. A pity, as a steam train is a rare sight in Victoria Station these days, especially on the Eastern section.

At 11.2 am, instead of the usual 11.0 am, we pulled out of the platform and effortlessly made our way up the steep gradient to Grosvenor Bridge. There was no noise or fuss, as in a diesel locomotive, and no smell of oil or exhaust. Driver Skelton, from Dover shed, kept his eye glued ahead, as the line through the London suburbs abounds with curves, junctions and signals which call for constant surveillance. No great speeds are called for or, in fact, desirable until well clear of London, and

Top: The distinctive Golden Arrow barrier at Victoria Station. Top left: E5024 reaches journey's end at Dover Marine. Left: An example of the modern rolling stock on the Kent coast electric service. 4-CEP unit No 7196 in the rebuilt Folkestone Central Station.





we kept within 60 mph until past Knockholt, when we romped down the bank through Duntun Green at 70 mph.

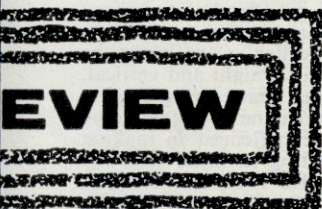
Beyond Sevenoaks I was to see the Southern Region's latest phase in the Kent coast electrification. All along the route from London I had been impressed with the tidy appearance of the trackwork, signalling and clear atmosphere of the smoke-free tunnels. The all-electric line (with just a smattering of diesels) is a pointer to the future and, from Sevenoaks onwards, there were many examples of the modernisation that has taken place. New fences, station platforms, concrete over-bridges and occupation crossings are just a few examples of the many necessary items required when electrification takes over.

In addition, a completely new colour light signalling system had replaced all the small hand-operated boxes, enabling a faster service to operate with shorter headway

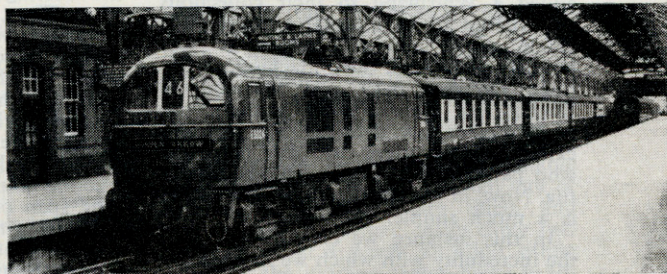
for Ford Motor Co traffic—more about these wagons in a later article.

Beyond Ashford we reached 80 mph as, to keep time, the schedule calls for higher speeds at this point. Nevertheless, we couldn't help but arrive early at Dover and, after threading our way through the cuttings and tunnels of the famous white cliffs, we eventually tugged round the sharp radius curve into Dover Marine station  $1\frac{1}{2}$  minutes ahead of schedule, just 1 hour and  $20\frac{1}{2}$  minutes after leaving Victoria 78 miles behind. The *Invicta* was waiting at the quayside for the next leg of the journey, and some 30 minutes after the train's arrival I watched the Golden Arrow passengers set sail for Calais.

For my return trip, I chose to sample the semi-fast service, and travelled in one of the half-hourly stopping trains from Dover Priory. These trains are made up of the new 2-HAP two-coach set with saloon and



MMONS



between trains. The Golden Arrow flashed past numerous electric passenger and diesel-hauled freight trains on the up lines, and it was evident that a busy service was in operation.

No more than 70 mph was needed to keep time on the straight and level 'race track' between Tonbridge and Ashford. A few dead steam engines were at Tonbridge, but I noticed the shed walls were white-washed and housed a Type 3 diesel. Paddock Wood no longer held an H tank in the bays, but a 2-HAP electric was in readiness on the Maidstone West branch, and a long line of condemned wagons marked all that remained of the Hawkhurst branch. Just before Ashford we passed the brand new rolling stock depot, where rows of sidings and a fine new shed provide accommodation for a large part of the multiple unit electric stock operating the line.

Just two C Class 0-6-0 locomotives were to be seen in steam at Ashford, and one was shunting some of the new four-wheeled box vans built at Ashford specially

*The Golden Arrow waiting in Dover Marine for the return working to London Victoria.*

side-corridor accommodation, and toilets, but no corridor connections between coaches. These trains run right through from either Margate or Ramsgate and stop all stations to Ashford, from where they run semi-fast. The coaches have neat, comfortable and well-heated interiors and they ride very well at quite high speeds. Their acceleration and top speed need to be good, as some of the timings are tight for what is virtually a local service; for instance 21 minutes for the  $21\frac{1}{4}$  miles from Ashford to Paddock Wood.

I completed my journey by a series of connecting cross-country services involving a change of train at Tonbridge, Guildford and Woking and a reversal at Redhill. Although some of the connections were tight ones of only two or three minutes each, it is a credit to the Southern Region that the journey was accomplished as planned, with no late running or missed connections.



## PROFILE

# A Heinkel glider tug from the Airfix He 111

**E**XPERIMENTAL and 'one off' aeroplanes have always held a fascination for modellers, likewise the unconventional subject. Our older readers will doubtless recall how, during the war years, many added a Whirlwind to their collections on account of its unusual appearance—albeit many months before it was publicly illustrated! Such machines as the huge Douglas B-19 and the shapely Boeing Sea Ranger took a more important place than their numbers logically called for. Yet there can have been few who patiently produced a Heinkel glider tug. Now, in the plastic era, such a model is a much simpler proposition.

In this instance we cannot but recall the incredulity with which we first viewed the wartime recognition silhouettes of this monstrosity, and imagine the feelings of an intruding Mosquito which caught one of these aircraft on a landing approach. Five-engined aeroplanes are rare, and surely the He 111Z is an oddity worth adding to any collection of models. To produce a Heinkel glider tug from the existing Airfix He 111 isn't difficult, and with our less experienced readers in mind we set about satisfying a desire of 20 years standing, while musing on the other possibilities of simple conversion and colouring that the standard bomber kit offered. But first, the Heinkel glider tug.

The fuselage of the Airfix Heinkel needs to be assembled as directed. You will need two Heinkel kits, three if you are fussy. The tail planes can be assembled whilst the fuselages dry. If you wish to paint the interiors, do so before assembling the fuselages, using a light greyish green and adding patches of silver for authentic finish. The floor in the nose, and also the seat, needs to be black, likewise the instrument panel, which later can be fitted to the roof of the nose

transparency. It is easier if the latter is assembled and fitted to the model before the wings are added, for it is then more easily faired into place. Painting of the cabin framing could also be done more easily before proceeding with the rest of the model.

Ideally, the ventral gun cupola should be entirely remodelled to embrace windows at the front and in the side, and a strip of five fitted on each side of the belly of the aircraft directly above the cupola. The flat panelling aft of the cupola needs to be overpainted or replaced by a fairing, since the He 111H-6—upon which the He 111Z was based—had these features. Attachment points for the bomb racks beneath the fuselage also need filling.

Next, assemble the four wings of the two kits and set them aside to dry thoroughly. Attach a starboard wing to one fuselage and a port wing to the other. Then, when you are sure that the remaining wings are firmly stuck, cut straight across them immediately outboard of the nacelles. Care must be taken that the cut is straight and vertical, otherwise when the centre wing section to carry the fifth engine is made, some difficulty will be experienced in making a sound join. Bearing in mind that the wing span of the He 111Z was 115 feet 6 inches, mark out the span of the required centre section, remembering that overall the model will have a wing span of 19½ inches. Cut and shape the oblong centre wing section, and ensure that it will neatly join the two cropped wings.

Obviously, the fifth engine would look most effective if it were taken from a third Heinkel kit. If this acquisition is decided upon, assemble a further wing and, when it is completely dry, cut a rectangular section containing the nacelle from it. Trim away any of the remaining wing that seems likely to make it difficult to fair the nacelle in place. It will be noticed that if this were not done part of the dihedral of the wing would remain, making it difficult to join the nacelle into the new flat wing section. The nacelle has beneath it a slanting radiator which must be modified if you demand accuracy—as indeed you should. The glider tug had four main undercarriage units, so the doors of the fifth nacelle need to be stuck in place if you have taken it from the third Heinkel kit.

Various ideas for fairing have been mentioned in AIRFIX MAGAZINE. One useful method is to fill small cracks with



Polyfilla. This can also be used as a filler for balsa wood, and can be sanded down to provide a good surface. If you decided to make the fifth engine for the He 111Z from balsa, you will need some such filler to obtain a suitable finish. It is, of course, better to model it from harder wood, on which several coats of plastic enamel may be applied and sanded down to get a fine finish. The exhaust pipes as supplied in the kit have shrouds and long tail pipes. They may be retained for the He 111Z or, alternatively, serrated manifolds can easily be made to replace them.

A dorsal turret was fitted to the He 111H-20 featured in the Airfix model, whereas the glider tug, like other He 111Hs, had a curved transparency over the dorsal gun position. This can be moulded from plastic sheeting, but for the model illustrated the canopies were made many years ago. A wooden block was carved at its tip to the shape of the transparency. Melted lead was poured into a depression in sand into which the wooden shape was plunged to produce a mould. This was put into boiling water in an old saucepan. Celluloid sheeting, cut to requirement, was then forced into the mould by inserting the wooden shape above it. After cooling, it was

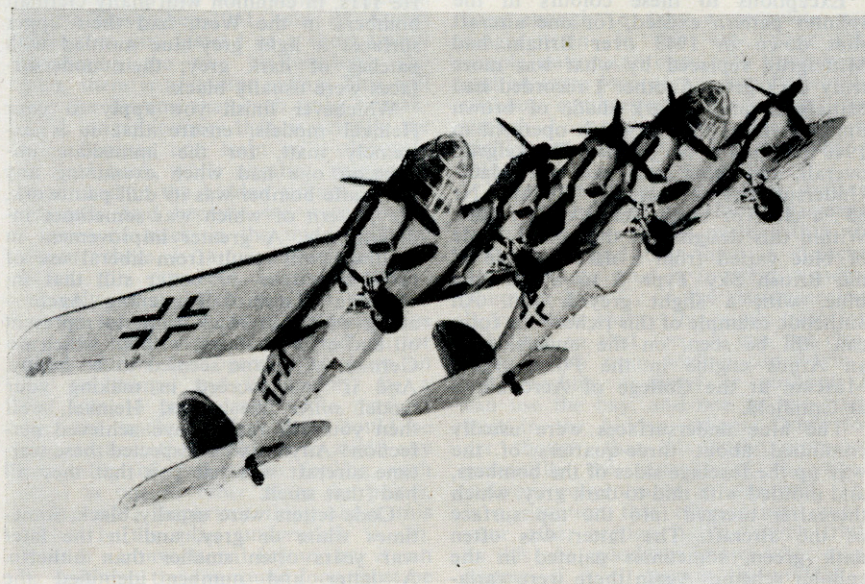
*One of the main problems when building a Heinkel glider tug is to find accurate details of finish. The author's model was painted with the help of a wartime photograph.*

polished with metal polish. Which all goes to show how much easier model making is today! Various methods proved equally successful and including dissolving Celluloid in amyl acetate or acetone, which was subsequently applied to a wooden shape of the required transparency.

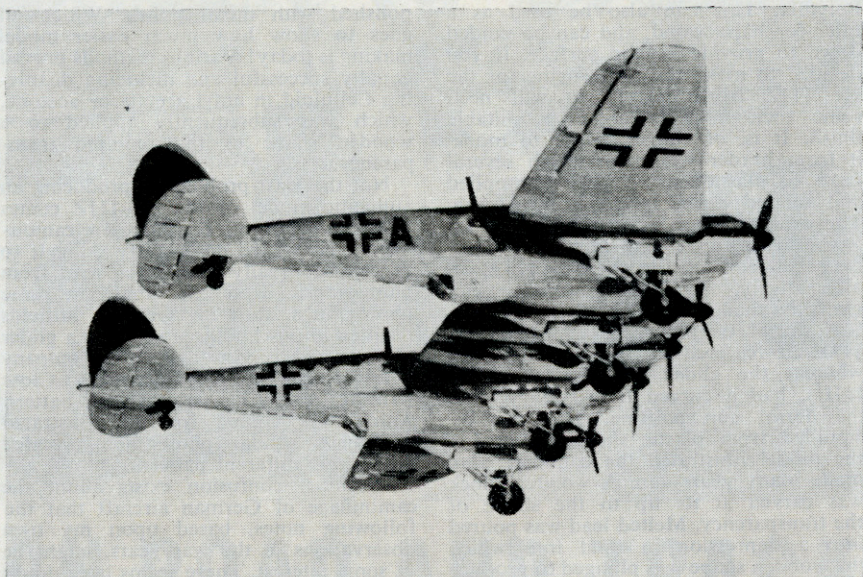
Not the least problem in producing an authentic model of the He 111Z comes with the painting, for German camouflage finishes are notoriously difficult to paint and equally difficult to read from photographs. Research among wartime photographs showing German airfields resulted in our finding one where a glider tug was clearly visible, keeping company with some Me 323 transports. Close scrutiny revealed a camouflage pattern which was copied for the illustrated model. A similar photograph revealed an entirely different pattern.

So much confusion exists about the camouflage of German aircraft that the following notes, based upon my own observations in the war years, might be of some interest. There seems little doubt that, prior to the war, a standard pattern of zig-zag camouflage, generally known as 'splinter camouflage' was applied, albeit allowing for individual variations. After the outbreak of war, camouflage on the He 111s became varied. The splinter camouflage was applied to a fair proportion of aircraft and generally

*Continued on next page*







#### PROFILE—Continued

consisted of stripes of 'Dunkelgrün Nr 73', which was a dark green similar to the richer and darkest variation of the standard British Dark Green, and 'Mittelgrün Nr 72', which approximated to the shade which is laid down as olive green.

Exceptions to these colours in the splinter pattern existed, for one aircraft shot down in 1943 over Britain had Mittelgrün replaced by what was more truly dark grey. Another I recorded had Mittelgrün and a dark shade of brown upper surfaces. Many which operated in 1940 had their upper surfaces Dunkelgrün overall, and some even had matt black. Undersurfaces were usually 'Hellblau Nr 65', a clear or bright shade of sky blue. Within this designation the actual shade of blue varied from a darker shade of the British Sky Type S to a rich sky blue, with a slight greyish tint. An authentic example of this richer blue form can still be seen, on the underside of an Argus engine in the Power Plant Museum at the College of Aeronautics at Cranfield.

The blue undersurfaces were usually continued about three-quarters of the way up the fuselage sides of the bombers, and mottled with mid to dark grey, which thereafter merged into the top surface of the aircraft. The latter was often dark green, sometimes painted in the splinter scheme. Again there were varia-

*When painting your model He 111Z, do not overlook the fact that operational aeroplanes are frequently oil and exhaust stained. Such finishes lead to increased realism.*

tions of style, for on some machines the grey patches were more distinct than on others. By the end of the war, bomber He 111s, in common with many German bombers in the West, had their upper surfaces a light grey-blue mottled with patches of dark grey; their undersurfaces were usually black.

Whichever finish you apply to your Heinkel models, ensure that it is extremely matt, for the immediate impression one had when examining any Luftwaffe bomber was its dull paintwork, the pattern of which was sometimes indeterminate. A greater improvement in accuracy will result from liberal use of turps substitute—or better still that invaluable Humbrol Flattening Agent—along with thin black paint to represent oil and exhaust stains, without which no German aeroplane seemed to be happy. And if you succeed in making your model *smell* like a real Heinkel, well then you will really have achieved perfection! Anyone who inspected these war-time aircraft will tell you that they all had 'that smell.'

Code letters were usually black, sometimes white or grey, and in the later war years often smaller than hitherto. A letter and number identified the



Kampfgeschwader, and two others indicated the individual aircraft and Gruppe and Staffel. He 111s operating with KG 26 during the Battle of Britain, for instance, carried the unit coding 1H (forward on the port and aft on the starboard sides of the fuselage crosses) and KG 55 used G1.

Since earlier versions call for drastic modifications to the nose and wings, the Airfix kit offers scope mainly for modifications to produce variants of the He 111P and 111H. The He 111P was the first to have the pilot in the extreme nose, wherein the gun position was offset to afford a good pilot's view. Powered by two Daimler-Benz DB-601As, it entered production late in 1938, and was in service when the war commenced. The He 111H had Junkers Jumo 211A engines, to release the DB-601s for fighter aircraft. Sub types had modifications to their armament, radio and engines and changes in rôles.

The first He 111 shot down over the UK was an He 111H-1, which crashed near Edinburgh, on October 28, 1939, almost intact. Another, shot down in 1940, was He 111H-3 Werke Nr 6353 of the Lion Geschwader. She became a common sight as AW177, and was extensively flown at the RAE and AFDU Duxford, wearing prototype colouring. The H-3 had Jumo 211D-1 engines as a distinguishing feature. The H-4 carried one 2,200 lb bomb on an under fuselage rack. The H-6 was fitted to carry two

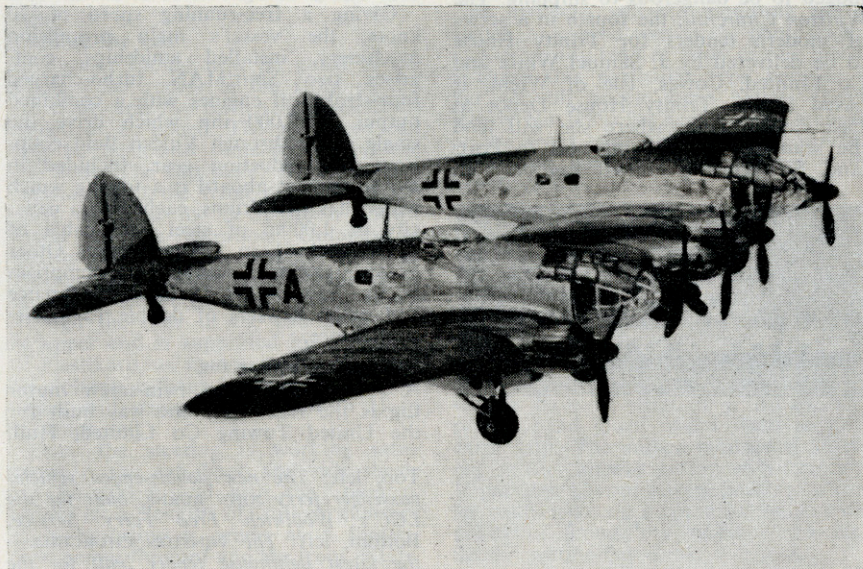
torpedoes externally and was used by KG 26 in Norway. Two of these aircraft were the basis for the glider tug variant.

The He 111Z Zwillling (or 'twin') was produced in prototype form in 1941 as a tug for the large Messerschmitt glider. Following the two prototypes, ten production aircraft were produced in 1942. The pilot flew the aircraft from the port fuselage. Projects existed for a long range reconnaissance version, and another to carry four Hs 293 glider bombs.

Other simple conversions would be to the H-16, widely used late in the war as a bomber in the East, or to the H-23 transport, the final production variant, an example of which was shown at the RAE display of German aircraft in November 1945. Equally attractive would be one of the black and grey He 111Hs used to carry an FZG-76 flying bomb under the port wing root. Such aircraft were operated first by 111/KG 3 (unit code 5K) from July 1944, against the British Isles from airfields in Holland. Subsequently they moved to North-West Germany and Denmark where they were then in the hands of KG 53. Their operations proved hazardous, 41 He 111s being lost on operations, which were halted in the middle of January 1945.

**M. J. F. Bowyer**

*With care, a good replica of the He 111Z is a possibility, and one can imagine what an impressive sight one of these aeroplanes must have been.*



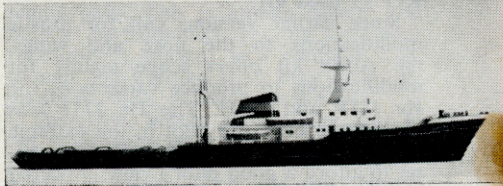
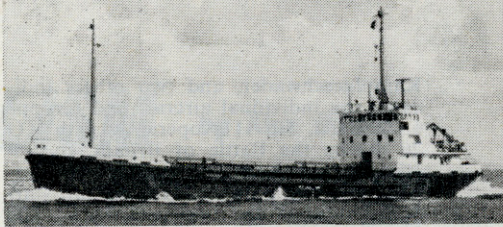


# SHIPPING NOTES

by A. J. Day

AS is so often the case today, some of the really important people in our national life stay sombrely in the background, their deeds unsung and their names known only to the few. So it is with shipping. Those smaller vessels—the tugs, the tenders, the river ferries, and the like—receive but little public acclaim. Yet the importance of some of them to world shipping is beyond measure. Take, for instance, the lighthouse tenders—and there could be nothing more appropriate to start an article about 'the little ships' than a vessel named *Winston Churchill*.

The *Winston Churchill* is the latest lighthouse tender built for the Corporation of Trinity House, London. She is of 1,425 tons net, and will be used primarily for transporting stores and carrying crews to and from isolated light-houses and light-vessels. She will also tow light-vessels to and from port for overhaul and repair, maintain lighted and unlighted buoys and, on some occasions, disperse wrecks which are judged to be dangerous to shipping. The *Winston Churchill*, the fourth in a series of modern tenders for Trinity House to be delivered by J. Samuel White and Co Limited, Cowes, Isle of Wight, is based at the Trinity House Depot at East Cowes, from where she will tend the seamarks from Dungeness to Portland. Sir Winston himself has been an



*The motor-driven hopper barge AIGBURTH (top) and a model of the ZWARTE ZEE, the most powerful ocean-going motor tug of her type in the world.*

Honorary Elder Brother of Trinity House for more than half-a-century.

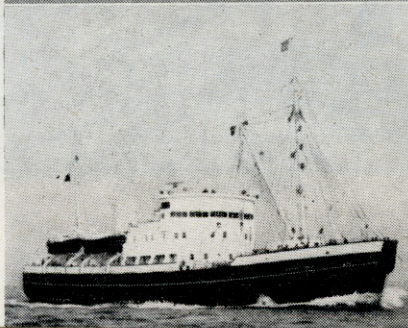
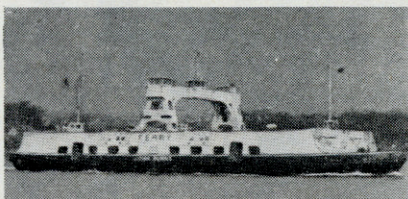
## Ocean-going motor tug

The ocean-going motor tug *Zwarte Zee*, the latest tug to join the ocean-going fleet of L. Smit en Co's Internationale Sleepdienst, Rotterdam, is the most powerful vessel of her type in the world. She has an engine output of 9,000 ihp. She was built by J. en K. Smit's Scheepswerven NV, Kinderdijk, and is a single-screw vessel of 1,539 tons gross, with a length of 254 ft 3 in, a moulded breadth of 40 ft 6 in, a moulded depth of 22 ft 8 in and a draught of 18 ft 10 in.

Giving a free-running speed of 20 knots, the vessel's main propulsion machinery, installed amidships, comprises two Smit/MAN turbo-charged four-stroke oil engines with a combined output of 9,000 ihp which drive the single screw through Vulcan fluid couplings and reduction gear. Included in the equipment aboard is a towing winch which has two drums, each with a capacity of 1,000m of steel wire cable of 7½ in and 6½ in circumference. Other heavy towing equipment comprises manila hawsers of 25 in circumference and nylon hawsers of double 15 in circumference.

## Twin-screw motor tug

A recently-completed twin-screw motor tug is the *Headman*. She was built for the United Towing Co Limited, Hull,



*Top, left: The new double-ended vehicle/passenger ferry JOHN BURNS, built for the LCC's Woolwich Free Ferry Service. Bottom, left: The WINSTON CHURCHILL—the latest lighthouse tender built for the Corporation of Trinity House.*



by Cochrane and Sons, Limited, Selby. Of 230 tons gross, the *Headman* has a length oa of 104 ft 9 in, a moulded breadth of 28 ft, and a moulded depth of 12 ft. During trials her bollard pull proved to be over 16 tons, while her astern bollard pull was 11 tons and her free running speed 10½ knots. The tug's twin screws are each driven by an 8-cylinder Lister-Blackstone oil engine of the ERS8MGR type, each developing a continuous rating of 660 bhp at 750 rpm.

#### Motor hopper vessel

Another type of vessel in the smaller size range which has been delivered recently is the motor-driven hopper barge *Aigburth*, built at the Glasgow yard of A. and J. Inglis, Limited, for the British Transport Docks Board at Garston. She completes the replacement and modernisation programme of the Garston dredging fleet. The *Aigburth* has been designed for carrying out to sea from the Mersey the spoil dredged by the bucket dredger *Garstonia* working in the approach channel to the docks at Garston. The new vessel has a hopper capacity of 1,200 cu yds and carries a crew of 10. She is propelled by a 12-cylinder Crossley oil engine which develops 2,400 bhp at 600 rpm.

#### New Woolwich ferry

Many of our readers may have already used the new double-ended vehicle/passenger ferry *John Burns*, for she began operating on the London County Council's Woolwich Free Ferry Service some weeks ago. She is the first of three new vessels which will replace the four paddle steamers that have been operating the service for more than 30 years. The *John Burns* was built for the LCC by the Caledon Shipbuilding and Engineering Co Limited, Dundee. Her two sister-ships, the *Ernest Bevin* and *John Newman*, have been launched at the Dundee yard and should be working

at Woolwich from some time in August.

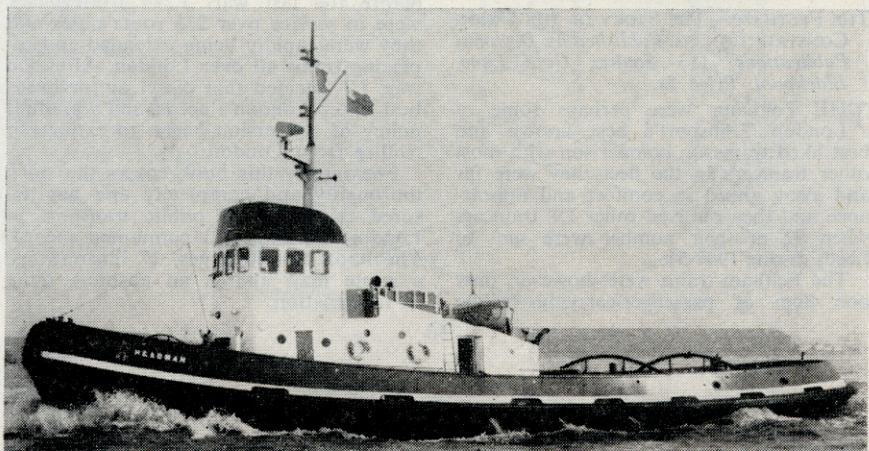
The *John Burns* has a length oa of 185 ft 7 in, a moulded breadth of 61 ft and a moulded depth of 8 ft 9 in. She can carry 1,030 passengers and 200 tons of vehicles on a draught of about 6 ft. The vessel has been designed for end-loading, but this facility will not be used until new approaches are completed at Woolwich in 1965, which will enable vehicles to drive on at one end of the ship and drive off the other. The propulsion system of the *John Burns* comprises two 500 bhp Mirreles National 7-cylinder oil engines, each driving a Voith-Schneider propeller at opposite ends of the vessel.

#### Two more warships launched

The eleventh Oberon-class submarine and the sixth Leander-class frigate were launched towards the end of May. The submarine, HMS *Opossum*, is being built at the Birkenhead shipyard of Cammell Laird and Co (Shipbuilders and Engineers), Limited, and will be powered by diesel-electric machinery of the Admiralty Standard Range type, supplied by British Polar Engines, Limited. The main propulsion generators, main motors and main controlling switch gear are being supplied by English Electric Co Limited, Stratford. The new submarine will be armed with the latest detection equipment and homing torpedoes.

The frigate, HMS *Galatea* (2,000 tons), will carry two fully-automatic 4.5 in guns in a twin mounting, two 40 mm anti-aircraft guns in single mountings, and a triple-barrelled anti-submarine mortar. She will also have a Westland Wasp helicopter operating from a small flight deck situated aft. Her steam turbine machinery is being supplied by the Wallsend Slipway and Engineering Co Limited, and the gearing by Parsons Marine Turbine Co Limited.

*The twin-screw motor tug HEADMAN.*





# SOME NEW BOOKS

Reviewed by  
THE EDITOR

## Unique collection

UNITED STATES NAVY AND MARINE CORPS FIGHTERS 1918-1962. *Compiled by Paul R. Matt and edited by Bruce Robertson. Published by Harleyford Publications Ltd, Letchworth, Herts. Price 60s.*

ALL enthusiastic aircraft model makers will admire the way in which these Harleyford publications have those extremely useful scale plans at the end. This latest edition, a companion to the *United States Army and Air Force Fighters*, is no exception and although we have only had this book for a few weeks it has already done yeoman service in providing long-sought details of camouflage schemes and individual insignia on certain obscure types.

Apart from this, the author has brought together a unique collection of photographs and information on a subject which has for a long time needed elaboration. Much of the early pages are devoted to US Navy aircraft of the pre-1939 era—the days of the ‘Boeing Bipes’ which, with their colourful paint schemes, bring back memories of early movies and one’s first interest in aviation.

The post-war period of United States naval aviation has not been forgotten and we found much of the detail about the experiments with the first jet aircraft, and their subsequent development into the present day Mach 2 plus types like the F-4 Phantom, of great use, as much of the information has hitherto not appeared in print. An interesting chapter is devoted to the aircraft carrier and illustrations are given of most of the pre-war giants and their post-war contemporaries.

## Absorbing story

THE FELTHAMS—THE STORY OF THE UNION CONSTRUCTION CO. *Published by Dryhurst Publications, 113 Squires Gate Lane, Blackpool. Price 5s.*

THE Felthams were perhaps some of London Transport’s best known and best liked trams. In comparison with most other tramcars in the fleet they were far and away ahead in comfort and appearance and they outlived other LT tramcars when 92 of their number were sent to Leeds during 1949-51.

The Feltham trams were, however, only one item of passenger-carrying rolling

stock produced by the Union Construction Company, and this book also describes the experimental trams leading up to the Felthams, the Underground tube and District line stock and the early London trolleybuses known as the ‘Diddlers’ which were also products of this firm. The story of the UCC is itself most absorbing and is ably told in this well illustrated 56 page book.

## Book for beginners

MODERN AEROMODELLING, by R. G. Moulton. *Published by Faber and Faber, 24 Russell Square, London, WC1. Price 18s.*

ALTHOUGH the hobby of flying a model aircraft goes just a little beyond the scope of this magazine, much can be learned from the flying enthusiast. R. G. Moulton’s book gives several hints and tips that are of use to our own hobby, including as it does a chapter on plastics and another on moulding canopies for the conversion enthusiast.

We can recommend this book to anyone who thinks that the rather static solid model could well do with a little more action, as it is a book for beginners. Mr Moulton’s expert treatment of a complex and painstaking subject is well written and adequately illustrated.

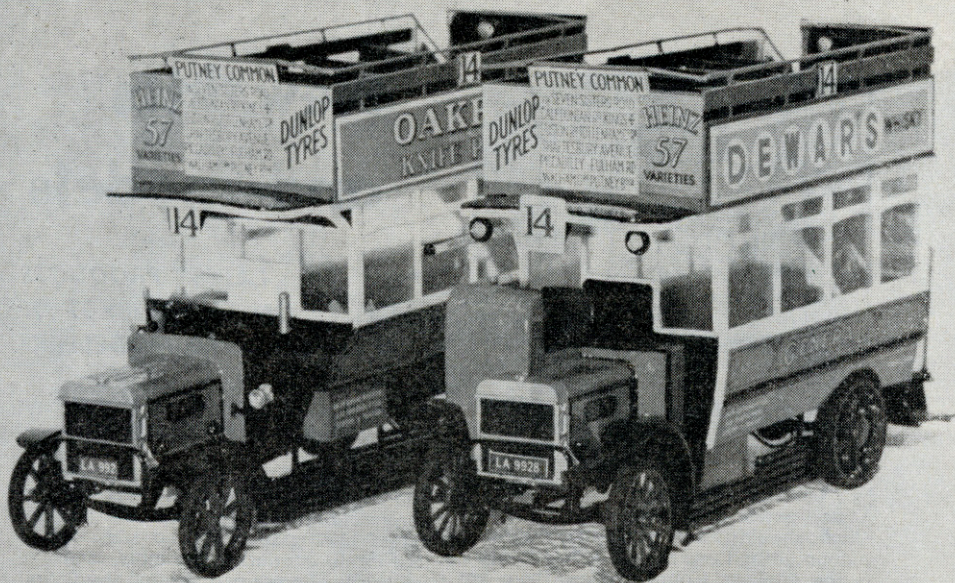
## A fitting record

THE LONDON TROLLEYBUS. *Published by Dryhurst Publications, 113 Squires Gate Lane, Blackpool. Price 5s.*

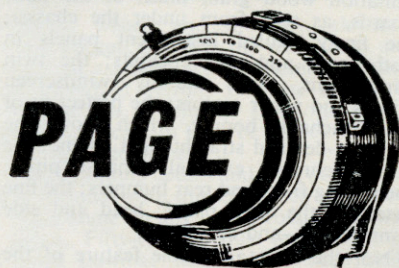
DESPITE London Transport’s pre-occupation with standardisation, the trolleybus fleet, even until its final days in 1962, was most interesting to the transport enthusiast. In its heyday immediately before the last war, 1,244 trolleybuses were in service over 235 route miles and they were rapidly being extended and replacing trams all over London. After the war, LT decided that diesel motor buses best suited London’s needs, and a gradual policy of conversion began to extinguish trollies from London.

Fortunately this book covers the story thoroughly and completely and has assured this form of public transport in London a fitting and permanent record. The book has 60 pages, 27 illustrations, a route map and is an absolute mine of information.



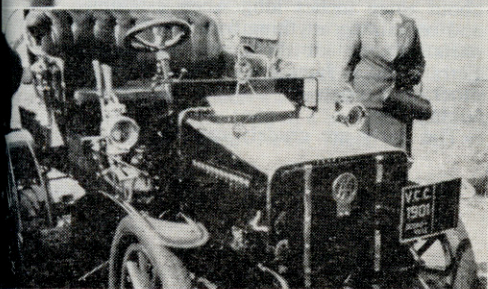
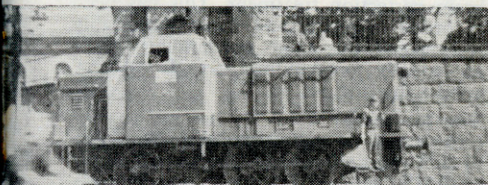


# PICTURE

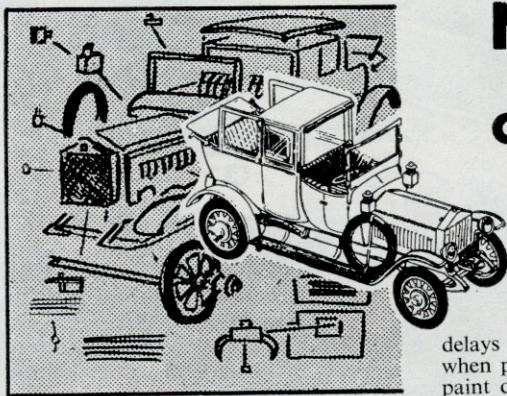


D. Pascall, of Guildford, took this picture (below) of a Norwegian diesel locomotive in Oslo. Bottom: This 1901 Decauville was photographed by T. Latimer, of Northampton.

Above: Winner of this month's picture of the month award is A. Howard, of London, W4, who took this photograph of his Airfix B-type (left) alongside his conversion to a LGOC K-type. Below: J. G. Gaylard, of Cowes, sent this photo of a five-unit, ultra-heavy duty long-distance transporter. Bottom: Reader Lars Henrik Kongsbak Arvedsen, of Denmark, took this picture of the Danish vessel *Vindhunden*.







# New kits and models

## LATEST PRODUCTS ON THE MARKET OF INTEREST TO MODELLERS

### New buildings series

A new series of 2 mm scale buildings, which should soon be in the shops, is announced by Lone Star Products. Known as the Gulliver County Series, there are nine different buildings—an inn, church, fire station, ranch-style house, shop and car park, garage and filling station, pair of shops, two-storey house, and thatched cottage.

The buildings are moulded in vinyl, with a base measuring approximately 5½ inches by 3 inches, and incorporating pavement, gardens, courtyard or car park, depending on the individual model. They are fully painted, clearly showing detail, and are individually boxed. They cost 3s 6d each, and more 000 scale vehicles and figures will shortly be available. *D.R.*

### Outstanding car, outstanding kit

We last had the pleasure of reviewing a Monogram car kit a year ago, in the July 1962 issue, when we spoke enthusiastically about the 1934 Ford coupé/convertible. The latest Monogram kit, submitted by BMW Models, of Wimbledon, sets an even higher standard, and is a really magnificent 1:24 scale Duesenberg. To be precise, and one can talk of nothing else but precision in this kit, the car is a perfect replica of the 1934 Model SJ, with a Weyman-built Torpedo-Phaeton body.

The 150 plastic parts are beautifully moulded in black, tan for the bodywork, white, chrome and clear plastic. The moulding is sharp and clear-cut, leaving hardly any 'flash' and there is a perfectly smooth finish to every part. Very little painting is required, but a delightful feature of the instructions is the painting chart, which lists every part requiring attention. All the painting can be accomplished in advance before construction begins, and there are therefore none of those irritating

delays that can sometimes come about when parts have to be left aside while the paint dries.

The instructions are incredibly detailed and complete and illustrate every stage of construction by clear reproductions of actual photographs. At no stage was I left in doubt during assembly, and the perfect fit of every part ensured steady and trouble-free progress. It is difficult to single out particular features, but mention must be made of the perfect chrome wire wheels, beautifully shod with black rubber tyres, into which fit plastic white-wall inserts; the imitation wood grain finish of the floor boards, as seen from under the chassis; the finely-detailed instrument panels in both front and rear cockpits; the twin windscreens, with dummy windscreen wipers and wiper motors; the perfect fit of the detachable bonnet, which shows the superbly-detailed straight-eight engine; the curved chrome external exhaust pipes; the sprung front and rear bumpers; the fine detail of the clear plastic head and side lamp lenses—and so on...

Not the least admirable feature of the kit is the handsome appearance of the finished model. Monogram have done a fine job adding the 'Duesie' to their range, as such a character car deserves the Monogram perfection treatment. This has been accorded in plenty and I can thoroughly recommend this quite outstanding kit of an equally outstanding car. It is very good value for 34s 6d. *N.S.*

### Two for one

I can't talk so enthusiastically about two ITC Midget Model kits, also submitted by BMW Models. Each kit contains parts to build two models, each model being about three inches long when assembled and containing anything from about 14-19 parts. In one kit there are two cars—a Ferrari and a Jaguar XK120, and in the other, two boats—a Chinese junk and a Viking ship.

The parts are crudely cast, lack detail



and are not very convincing when assembled. This is not so critical with the ship kits, where extreme accuracy of outline and absolute precision is hardly required and a colourful painting scheme can add appeal to the model, but the two cars are very disappointing. Construction is simple enough, as the detailed instructions are very helpful. It is considered that these kits are more appropriate to the junior modeller, who wants to try his hand before tackling the more detailed and expensive kits. Both these kits, containing two models, each cost 5s 11d.

Due shortly to be available from BMW Models is the '55 Chevrolet customising kit, which will sell for 23s 6d. N.S.

#### Realistic farm buildings

Another excellent Faller building kit, submitted by BMW Models, contains parts for two fine farm buildings. The wooden barn is a perfect example of Faller's artistic excellence in representing ancient and tumble-down structures that can give character to a model scenic layout. The walls are made to represent rough-cut timber, with daylight showing between almost every section, giving a delicate lattice tracery effect to the finished model. On the roof are represented wooden tiles, many of which have slipped out of place, leaving holes in several places. Also included is a ladder, saw, sawing trestle, axe, lengths of timber, planks of wood and wood chippings to scatter around to give a perfectly realistic appearance to the finished model.

The second model in the same kit is for a stable. In contrast this is a sound, plain wooden structure with a tiled roof, but Faller's artistic sense has gone into play with the rustic fencing which beautifully portrays a natural broken-down and somewhat dilapidated appearance. Both these models come in the one kit which is very good value for the price of 6s 11d. N.S.

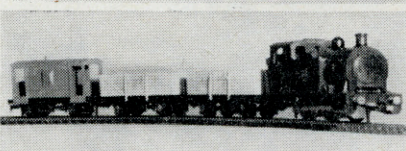
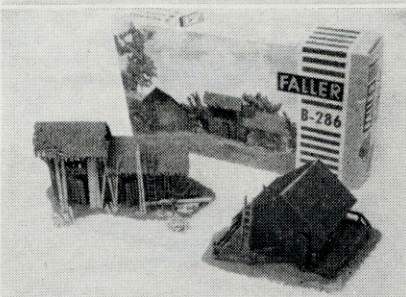
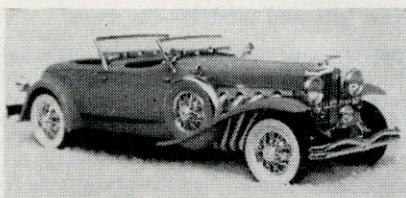
#### Model Merc

Sole importers and distributors of the French Solido range of die-cast models (Auto-Models Ltd, of 70 Finsbury Pavement, EC2) have now received supplies of the new Mercedes 220SE, which has suspension, opening doors and Reutter-type folding seats. Price is 10s 6d (plus 1s postage and packing). D.R.

#### Six of a series

The first six models in the new Revell 1:72 scale series of plastic model aircraft are now available. Retailing at 2s 11d each, and individually boxed, they are the Thunderbolt, Spitfire, Messerschmitt Bf

*Continued on next page*



Top to bottom: Monogram Duesenberg; ITC Ferrari/Jaguar and Chinese junk/Viking; Faller farm buildings; and Hornby set for beginners.



## New kits and models—Continued

109E, Focke Wulf FW 190, Hawker Hurricane 11B, and Japanese Mitsubishi Zero.

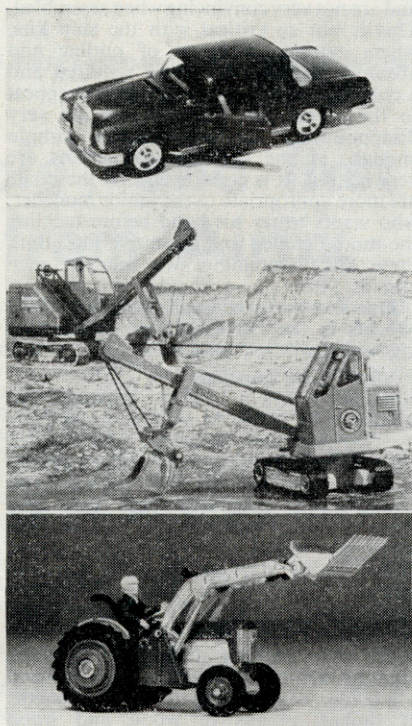
Though some modellers might have preferred to have seen the new series devoted entirely to kits of previously-unmodelled aircraft, we have been able to build samples of the first three to be released and found them to be good models. We particularly liked the clean mouldings and the quality of the transfers.

Instructions are extremely clear and easily read, while construction of the samples we received should present no difficulty, while the finished models will appeal to all 1:72 scale collectors. *D.R.*

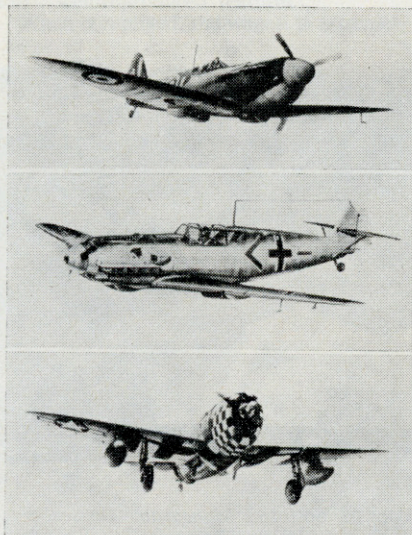
### Smaller scale

Another aircraft kit manufacturer that has followed Airfix and Heller and turned over to making a smaller scale series is the American ITC company. A sample of some of their new models was supplied to us this month by BMW Models, and consists of a twin-pack containing Lindbergh's 'Spirit of St Louis' and the Wright Brothers Biplane.

Once again, the smallness of the scale makes the rivets far too large, and such things as struts and engine details are totally out of scale. The Wright Biplane, for example, is one of the last subjects one would have thought suitable for reduc-



Top to bottom: *Solido Mercedes 220SE; Corgi Priestman 'Cub' and Massey-Ferguson '65' with fork.*



*Three 1:72 scale kits from Revell. Top to Bottom: Spitfire, Messerschmitt Bf109E, and Thunderbolt.*

tion to a length of only three inches. It makes the complicated arrangement of 'sticks and string' look altogether wrong and brings with it the hazard of a very delicate assembly and possible breakage after the model has been completed. Great care must be taken with this model to ensure that its 24 minute parts don't get great blobs of glue on them during assembly, as the results will look ghastly and could put the model maker off buying any more products from ITC in the same scale.

The 'Spirit of St Louis' is at least a little more robust, but I found that this miniature kit had a great deal of 'flash' to clean up first and the very delicate nature and thinness of the plastic was difficult to handle. It, too, is just three inches long and has 17 parts. Both models are moulded in a dark red plastic, which needs two coats of silver, in the case of the Lindbergh 'plane, to completely obscure. Why the manufacturers have to add to our difficulties in the finishing of their kits by using such a dark colour is rather beyond me!



If you are interested in the smaller scales, and both these models will fit quite well into a 1:100 scale collection, then they are worth purchasing. The price is 5s 11d and BMW Models of Wimbledon have a stock. *A.W.H.*

#### For beginners

Meccano have introduced a new Hornby electric train set specially intended for youngsters just starting to take an interest in model railways. Priced at £4 9s 6d, it includes a four-wheeled locomotive, three wagons and a power control unit. A three-foot circle of track is provided.

Also added to the Hornby-Dublo range is a new Simplex hand-operated point, price 7s 9d. Left- and right-hand versions are available, while the points are self-isolating, which obviates the necessity for using double isolating rails when the points are embodied in a layout. Electrically-operated versions of this point will be available later. *D.R.*

#### Automatic excavation

A faithful replica of the Priestman 'Cub' excavator has been added to the Corgi Toys range. Besides looking like the real thing, it operates like it as well. The correct sequence of luffing, digging, discharging and automatic return to the beginning of the cycle is achieved by rotating a single hand-wheel in the side of the cab casing. A fitted pendant on the boom opens and closes the bucket automatically at the appropriate stage of operation. By means of a ratchet system the whole movement can be suspended at any stage in the sequence, which itself works in either direction.

The boom is rigged with elasticated thread and provision is made for simple replacement of this should the necessity arise. Slewing is possible through a full 360 degree arc, but a locking pin is provided to secure the body in the fore-and-aft position for travelling.

Free-running rubber crawler tracks are fitted to the chassis, which has turned aluminium wheels and side plates of the correct pattern. The machine is finished in Priestman orange, yellow and grey, with the 'Cub' emblem on the doors. The driver is also represented, sitting at the controls in his enclosed cab. The model is 6½ inches long, and costs 15s.

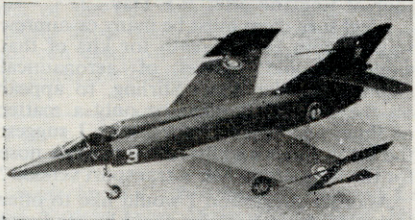
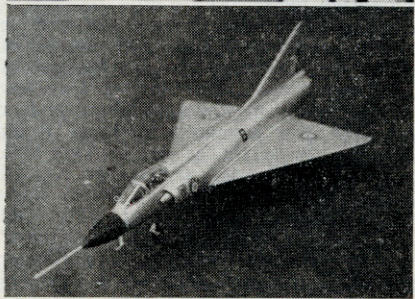
Also released by Corgi is a Massey-Ferguson '65' tractor with fork. The main feature of this model is a detailed manure fork which can be raised and tipped by lever action. The 4¾ inch long model is finished in authentic red and cream, with the fork in 'aluminium'-finish, has a driver and costs 7s. *D.R.*

#### NEWS FROM AIRFIX—Continued

America. The first 20 kits for the American market will all be 1:72 scale aircraft. Airfix kits have, for some time, been popular in the United States, but owing to the high tariffs and transport costs they have been at a price disadvantage compared with home-produced kits.

Not only have Airfix kits proved popular with the modelling public on the other side of the Atlantic, but the Smithsonian Institute in Washington, which is America's national aviation museum, chose Airfix 1:72 scale aircraft kits for its large collection of model aircraft—many of them of American aircraft.

When this initial development is established, it will give scope for the introduction of many other Airfix products into the United States.



Top to bottom: 1:50 scale kits by Heller—the Alouette III, Mirage III and Etendard IV—all reviewed last month.



# Readers write . .

## LETTERS TO THE EDITOR

### Why no Nelson?

The Airfix range of kits being one of the best and most complete I know, I would like to join all those who have already congratulated you on your choices, especially naval and army. One of the most interesting features is the uniformity of the scale used which, in my opinion, is a great advantage not found with other makes.

On the other hand, I suppose you must receive lots of suggestions as to the preparation of new models and, although it is understandable that every wish cannot be fulfilled, there is, however, a point I cannot understand: you have been making many different historical figures and—although I will not discuss the historic value of say Napoleon or Joan of Arc—I confess I do not see why a British firm does not include a Nelson or Wellington in its collection. While a visitor in Paris can find a hundred different kinds of Napoleons in all sizes, positions and materials, I never saw a single Nelson in London!

Don't you think, therefore, that both these reputed British figures should have their place amidst your models?

To end, I would like to add that I find AIRFIX MAGAZINE very interesting in all aspects.

E. PIETERS, Berchem/Antwerp, Belgium.

### First-hand facts

There must be many thousands of wartime aircrew, like myself, who, with the aid of Airfix, are building up a collection of 1:72 scale models of the aircraft they flew during the war. To find a model resplendent in one's own squadron markings is an even greater delight, as was my case with the Halifax. Beneath the bombs painted below the port cockpit window to show the number of 'Ops', (over 100), 'Old Charlie' also had painted the 'Gongs' won by crews who had flown that particular aircraft. This aircraft also went on a display tour of England after V-E Day.

I feel sure there must be many ex-aircrew waiting with bated breath for kits of that wonderful old marvel of aeronautical engineering, the Short Stirling, to appear on the shelves. It must be only a matter of time, and when it does, may I suggest the kit includes an alternative perspex nose for the long-nosed Mk V transport version?

Another suggestion I would like to offer is that an Avro York kit could be produced from the present Lancaster moulds with only the fuselage and third tailfin different. And then I'd have to start praying that it

LETTERS to the Editor can only be answered in the magazine. However, we are always pleased to receive your comments and pictures, which will be considered for publication. Readers whose letters are published each receive a free Airfix plastic construction kit of their choice. Submitted material and pictures can only be returned if accompanied by a stamped addressed envelope, and the Editor cannot accept responsibility for safe keeping of any such contributions, neither does he necessarily agree with comments expressed by correspondents in the letters column.

would come out in 51 Squadron, Transport Command lettering, 'TB-J'! The Lockheed Hudson, of early Coastal Command fame, would also make a very attractive model.

P. J. MCARTHUR,  
Wellington, New Zealand.

### Tank topics

With all due respect, I cannot help being a little amused by the passage, 'the Stalin had poor crew comfort and finish, but this lack of refinement . . . ' which appeared on page 324 of your March issue, in the description of the new Airfix kit.

Compared with other tanks, the JS3 had qualities far more important than cushions, curtains and coffee. This stands out if a comparative table is made out of the four AFVs in the Airfix range. I am quite sure that, had I been a tank man, I should have been happiest in the Stalin. It had the best speed of the four (always an acceptable feature for those occasions when withdrawal is the wisest course), its wide tracks would make soft ground non-troublesome, its 200 mm of armour at the front was surely the most comforting thing for those inside, while the 122 mm gun ensured the ability to hit back when annoyed. Even the shape of the turret was the most effective in deflecting hits. In case it is pointed out that the Stalin was of 1945 vintage, whereas the others were up to four years older, I would advance the theory that the Russians knew how to build tanks all along since, according to Allen and Muratov's *Campaign on the Russian Front*, the T34 (and their artillery in general, for that matter) came as an unpleasant surprise to the Germans.

In contrast, the Sherman, with which a good share of the Anglo-American armoured work was carried out, appears very light in the bone. It is credited with only a maximum of 76 mm of armour, this presumably at the front, and I cannot bring myself to believe that this was of much value against the high-velocity 88 mm gun used by the Germans in 1944. According to a Lt Schmidt, author of a book describing his experiences in the Afrika Corps, the Sherman was formidable against the



equipment-starved Rommel in the last weeks in North Africa in 1943. But against the Tiger, an uneven match, in my view. Its gun, a 75 mm calibre, was not of great hitting power. Its barrel of only moderate length, unadorned by a muzzle brake, betrays its modest muzzle velocity, while I can fall back on personal experience when I mention its cartridge case's lack of length showed a comparatively light propellant charge. Other tank and anti-tank rounds that I saw had cartridge cases sometimes twice the length of the projectile, possibly more, to give a tremendous muzzle velocity and hence striking velocity. I am quite willing to stand corrected by someone with experience of the vehicle itself in use, but until then I shall go on with the impression of an inadequate instrument.

While on the theme of inadequacy, I would add that the most pathetic of all must surely have been the American Stuart with its thin-skinned rivetted hull. In 1941-2 the Germans had an AP 75 mm high-explosive shell which went right through a Stuart without exploding, so little was the resistance offered! And a hit of any sort would make the rivets 'pop' and fly about inside, so I understood. I do hope that your development people do not waste any time, skill, or material on a Stuart kit. If you want other tanks on the list there's always the T34, the Tiger, the Patton, and the Centurion.

J. STILWELL, Croydon, Surrey.

#### Plea for pictures

May I appeal to your readers for help? I am Hon Secretary of the Rossington Aviation Enthusiasts Club, and Editor of *The Rossington Air Historian*. Just over three years ago, our group suffered a disastrous fire, which destroyed thousands of photographs and nearly all our documentary files—the results of ten years' work.

We are urgently in need of photographs to replace at least a small part of our heart-breaking loss, and enable us to carry on. If any readers have any spare aeronautical photographs which they no longer require I would be most grateful if they would kindly forward them to me at the address below, where they will be most gratefully received.

E. BACKWELL, 26 Grange Field Terrace, Rossington, Nr Doncaster.

#### Zero converted

I have just finished doing a rather interesting job on the Airfix Zero, which I converted into the Nakajima A6M2-N 'Rufe' float-plane fighter, utilising all Airfix parts.

For the main float, I took one from the Supermarine S-6B, and for the smaller

wing floats I found that those of the Gostling sufficed very well. For the main struts I used pieces from Joan of Arc's standard, and for the large faired strut attaching the main float to the fuselage under the cockpit I used a piece of wing from a Seahawk, sawn off and sanded down. As a guide I used *Famous Fighters of the Second World War*, by William Green.

I then bored holes in the wing floats at the appropriate places and in the undersides of the wings themselves and, cutting two pieces of plastic from the rod allowing for fitting into the wings and floats themselves, I fixed on the wing floats. In this way I countersunk all my joints, thereby making a much stronger model.

Then I fixed the large faired strut to the underside of the fuselage and fitted the bracing bars to the rear of the main float. The ends of these bars had an angled cut, so that when they were set on they were roughly at an angle of 45 degrees to the wing.

Lastly, I fixed a pitot tube to the left wing and a small rudder to the main float. I finished the model matt green-grey upper surfaces and matt sky under surfaces, also outlining the upper surfaced 'Hinomarus' with yellow.

TONY FISHER, Hanworth, Middx.

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